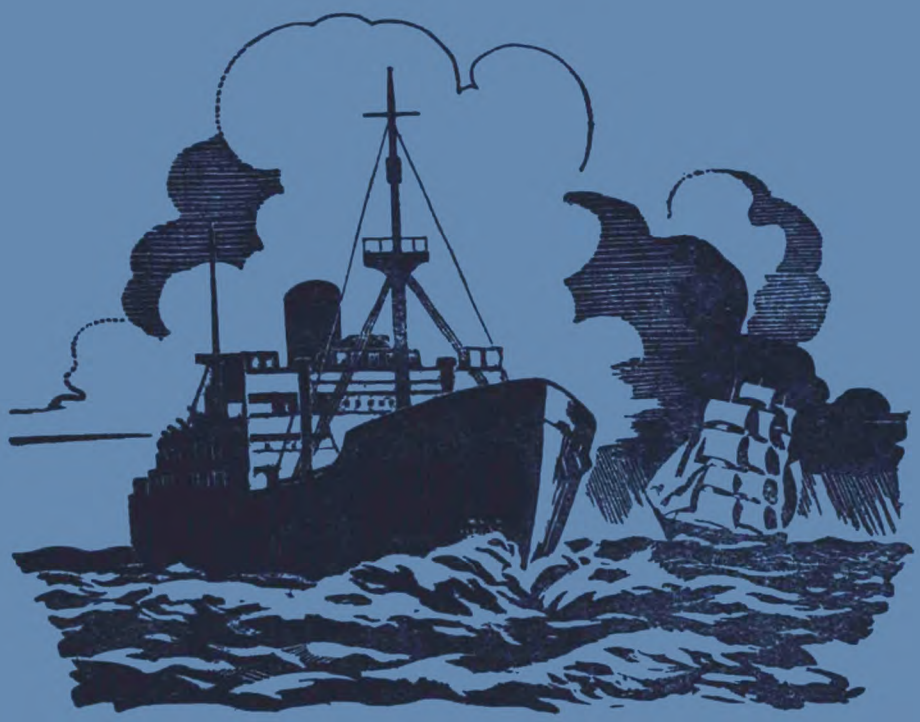
M.O. 566

The Marine Observer

A quarterly journal of Maritime Meteorology



Volume XXIII No. 161

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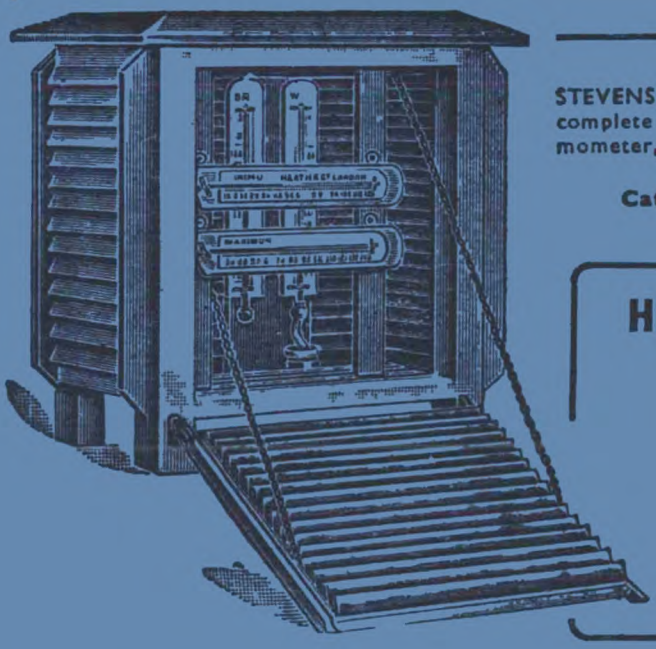

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THE MARINE OBSERVER

A QUARTERLY JOURNAL OF MARITIME METEOROLOGY PREPARED BY THE MARINE BRANCH OF THE METEOROLOGICAL OFFICE

VOL. XXIII No. 161 JULY, 1953

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Letters to the editor, and books for review, should be sent to The Editor, "The Marine Observer," Meteorological Office, Headstone Drive, Harrow, Middlesex

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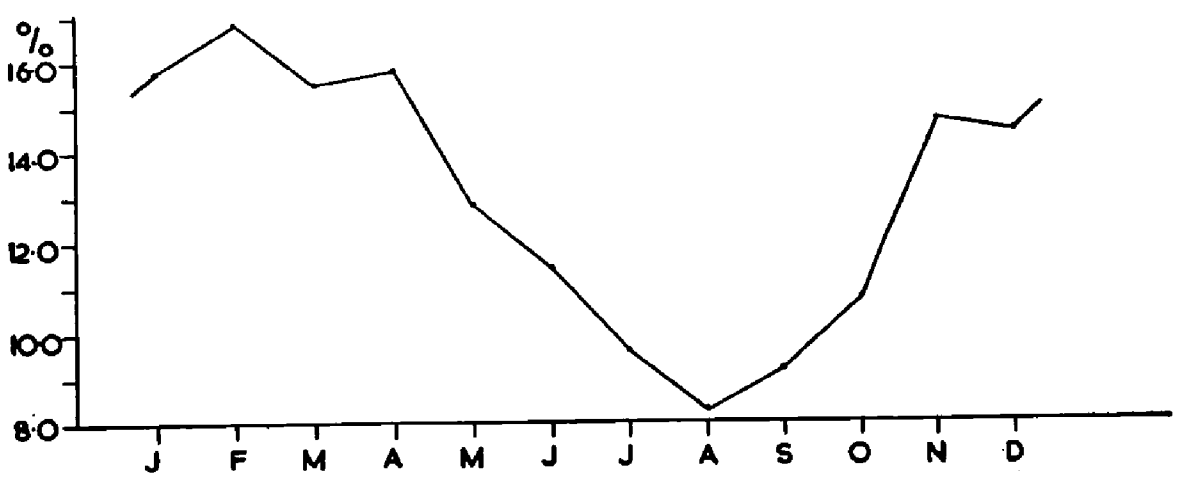
Editorial

The tragedy of the British Railways steamer *Princess Victoria* which foundered in a severe NNW'ly gale in the Irish Sea, and the disastrous floods during the same month which inundated large areas in the Netherlands and east coast of England, bring home to us the terrific forces of nature compared with which man's efforts—spectacular though they may seem—are extraordinarily puny. Meteorology indeed provides us with the most tangible and awe-inspiring proofs of nature's benefits, and at the same time of its cruelty. We in England are singularly blessed with our climate, as Gordon Manley tells us in his recent book *Climate and the British Scene.* Although we joke a lot about our unpleasant British weather it is rarely that we have to suffer the drought, blistering heat and searing cold which some countries experience, nor do we have famine to contend with; our weather, aided by the benevolent warmth of the North Atlantic drift, treats our islands kindly. It is only when storms of exceptional severity or, as in the case of the floods, a combination of strong winds and extra high spring tides occur, that we realise the enormous destructive force of the wind and the sea.

One might imagine that modern advances in shipbuilding practice had produced an unsinkable ship, and that with modern amenities such as stabilisers, various electronic navigational aids, gyro compasses, modern propelling machinery and very efficient steering apparatus there is little danger or discomfort at sea in even the worst storm. A glance at the casualty columns in *Lloyd's List* on almost any day will show how many shipping casualties are in fact due to the weather. A recent analysis of all reported shipping casualties during the period 1946–52 shows that 13 per cent of recorded casualties were directly due to the weather. This does not take account of other casualties (e.g. collisions, strandings) which in many cases were probably indirectly due to weather.

It is interesting to look at the average monthly variation of weather casualties throughout the seven-year period. The graph shown below gives the percentage of casualties due to weather, plotted for each month. The distinct minimum in



Graph of the monthly average over the years 1946-52 of the percentage of shipping casualties due to weather.

August and maximum in February are immediately obvious. The fact that these are the months of stormiest and calmest weather respectively in the North Atlantic can be no coincidence. But this graph is for casualties all over the world, and the height of the hurricane seasons in the western North Atlantic, the eastern North Pacific, the Far East and the Indian Ocean is in August and September. The decrease of casualties in the late northern summer must therefore be due to the great

preponderance of shipping using the North Atlantic. The analysis also shows that the percentage of casualties due to weather has varied quite considerably from year to year. The figures are as follows:

	%		%		%
1946	9·4	1949	14·1	1951	13·3
1947	12·7	1950	12·0	1952	14·7
1948	14·3				

Unfortunately there is nothing the meteorologist can do to control the weather. Seeding of clouds with silver iodide, ice particles, etc., from aircraft has in some cases produced artificial rain, and suggestions have been made that the course or direction of a hurricane might be altered by similar means; but it does not seem that any great steps are likely to take place in this line of research. Gales and other meteorological phenomena will inevitably occur and all meteorologists can do is to give as long and as accurate warning as possible.

We have advanced considerably since the first gale warnings and weather forecasts were issued by Admiral Fitzroy in 1855. The International Convention for the Safety of Life at Sea (1929) and its successor (1948), which officially came into force in November, 1952, recognises the value of adequate meteorological information being issued to shipping. The World Meteorological Organisation, which is responsible for co-ordinating the work of the meteorological services of all countries, is also fully alive to the importance of this. In all parts of the oceans and in all coastal waters nowadays it is customary for weather bulletins to be issued by radio for the benefit of shipping. In the more frequented ocean areas the bulletin includes not only storm warnings and forecasts but also a statement of existing weather and a selection of coded weather messages from coastal weather-reporting stations as well as from a similar number of carefully chosen merchant ships; an analysis is also broadcast which provides information about the positions of isobars, fronts, centres of highs and lows and the movement of these systems in order to assist ships' officers to make their own weather maps. Having a weather map aboard the ship to consult, the master is in a better position to interpret the forecast he receives. For shipping in coastal waters it is not usual to issue anything more than a very brief statement of the weather and a forecast as well as gale warnings when these are applicable.

In order to make full use of the meteorological information which is available it is important that ships' officers should be meteorologically minded. The Ministry of Transport's examinations for masters and mates wisely include meteorology in their syllabus; there is no doubt that in order to do his job properly a seaman must know something about at least the rudiments of this subject, and as scientific knowledge advances he needs to know more and more about meteorology and allied subjects in order to be fully proficient in all aspects of his job. Meteorology, for example, has an important bearing on the practical operation of radar. All meteorological services cost a good deal of money to operate and it is important that potential users of the information should be fully aware of the various means of obtaining it and the different uses to which it can be put.

In addition to the information which is issued to shipping by coastal radio stations, the B.B.C. plays its part by including a spoken bulletin in its programmes and gale warnings are issued when necessary, thus catering for ships in harbour and for small vessels which have not the facilities aboard for listening to the ordinary W/T and R/T forecasts issued by coastal radio stations.

It is not always convenient aboard a ship to be listening to the radio before sailing, but in such cases it is possible, if considered necessary, for those interested to telephone the nearest forecast office and to speak to the forecaster and thus get a verbal forecast for the particular area in which the ship is interested. This personal contact with the forecaster can be extremely useful, as special aspects of the

meteorological situation can then be discussed. Addresses of forecast offices are given in official publications of the Meteorological Office and Admiralty.

If a shipping company or a harbour authority wishes to be warned on a routine basis of wind exceeding a certain force or of the probability of fog, such a service can readily be provided on payment of a fee for the messages involved. Quite a few shipping companies and stevedoring firms make a regular habit of obtaining full information from the Meteorological Office about present and future weather. It is known that at least one marine superintendent has regular R/T conversations with the masters of those of his company's ships that are approaching the United Kingdom about future weather that may affect their docking time and conditions. Maritime meteorological services of most countries are glad to co-operate in this way to provide the best service they can for the benefit of shipping, for they are constantly aware of the great assistance given them by the radio weather messages from the oceans that are sent in by voluntary observing ships.

Of recent years means have been provided for transmitting an exact copy of a weather map by what is known as facsimile apparatus. Facsimile messages can be transmitted by land-line or by radio, and ordinary messages can be transmitted as well as maps and pictures. As will be seen from the example opposite page 148, maps transmitted by facsimile can be surprisingly clear and such a map takes only about 20 minutes to transmit. It is possible that one day merchant ships may carry facsimile apparatus whereby the master can be enabled to receive regular weather maps without the radio operator having the tedious job of receiving a large number of figure groups and the deck officer having to decode the message and draw the map himself. Experimental transmissions have already started and it is possible that it will not be many years before this apparatus is used for special purposes as much as radio telegraphy is at present.

MARINE SUPERINTENDENT.

WORK OF THE YEAR (ENDING 31st MARCH, 1953) OF THE MARINE BRANCH OF THE BRITISH METEOROLOGICAL OFFICE AND THE VOLUNTARY OBSERVING FLEET

1. Voluntary observing ships

(*a*) GENERAL

The Voluntary Observing Fleet consists of the following classes of observing ships:

(i) *Selected ships*, which make meteorological observations at the main synoptic hours of 0000, 0600, 1200 and 1800 G.M.T. These ships are supplied with mercurial barometers, barographs, portable Stevenson screens, canvas buckets and thermometers for air and sea temperature measurements. The coded observations are transmitted by wireless to various meteorological services in all oceans. The monthly total of these ships averages about 500.

(ii) *Supplementary ships*, which make and transmit observations in an abbreviated form at the main synoptic hours. These ships are supplied with a mercury barometer, thermometers and screen; their number totals about 50.

(iii) *Marid ships*, about 80 coastal vessels which make, and transmit by wireless, observations of sea temperature in home waters.

(iv) *Lightvessels*, 13 of which make observations of wind, visibility, air and sea temperature at 0600 and 1500 G.M.T. These observations are transmitted by 11 of these ships to shore radio stations by R/T and thence by telegram to the Central Forecasting Office, Dunstable. Of these lightvessels, seven make and report observations of waves.

(v) *Trawlers.* Twenty-two trawlers fishing in Arctic waters make non-instrumental observations and send their coded messages by W/T or R/T as convenient.

In addition to sending radio weather messages, logbooks of the meteorological observations are prepared aboard the ships and then forwarded to the Marine Branch for climatological analysis. A regular and extensive scrutiny of logbooks shows that the observations are in general made carefully and accurately, and that the radio weather messages are regularly transmitted by the ships to the appropriate authorities in all oceans. The logbooks are in most cases prepared with great care. On the average some 72 logbooks were received each month as well as similar records kept aboard both Canadian and Norwegian observing ships. Among their other activities certain selected and supplementary ships make observations of whales on behalf of the National Institute of Oceanography. The R.R.S. *Discovery II* was specially recruited, as a " Selected Ship," during the summer, prior to sailing for special research work in the South Atlantic.

Port Meteorological Officers and Merchant Navy Agents in United Kingdom ports made 4,510 visits to British merchant ships during the year.

Foreign ships

Radio weather messages from ocean weather ships operated by other nations in the North Atlantic and from foreign selected merchant ships have also been received regularly throughout the year at the Central Forecasting Office in Dunstable.

Whalers

Arrangements were again made for selected British whaling vessels to co-operate in the Antarctic as they did during the previous season. Radio weather messages from these ships, in which the ship's position is given in cipher, were routed via South African or Australian radio stations. Eleven British whaling vessels were recruited for the season 1952–53.

Quality of observations

The meteorological logbooks of British selected and supplementary ships are carefully scrutinised when received in the Marine Branch, and the Central Forecasting Office is encouraged to comment on the quality of the radio weather messages. Observations of doubtful accuracy are in all cases carefully investigated and steps taken to prevent a recurrence. The general standard of meteorological work in British ships, which is performed voluntarily, is high, and Port Meteorological Officers report that great interest is shown by the masters and officers in this subject. Considerable credit is due to these voluntary observers for the painstaking way in which they make and record their observations, which are of value not only to shipping but to users of meteorological information all over the world.

(*b*) Number of British Observing Ships

Table 1 shows the number of vessels of each class monthly throughout the year.

(*c*) Radio Reports

Table 2 shows the numbers of British selected ships, Marid ships, foreign ships and lightvessels reporting to Dunstable, and the number of messages received at the Central Forecasting Office, excluding reports received from ocean weather ships. It is not practicable to prepare similar tables for other areas.

Of the reports received from selected ships in the eastern Atlantic, a six-monthly check showed that approximately 55 per cent were received within one hour of the time of observation and 77 per cent within two hours.

(*d*) Equipment

Table 3 shows the distribution of instrumental equipment on loan to voluntary observing ships.

	1952									1953		
	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March

Table 1. Number of British Observing Ships

No. of Selected Ships on Fleet List	491	486	490	493	488	494	499	495	502	510	510	508
No. of Supplementary Ships on Fleet List	48	49	50	48	47	47	48	49	47	46	46	48
No. of Marid Ships on Fleet List	75	77	78	78	79	78	78	78	78	77	78	82
No. of Lightvessels on Fleet List	10	10	10	11	11	10	11	13	13	13	13	13
No. of Trawlers on Fleet List	12	15	17	17	17	18	20	22	22	22	22	22

Table 2. Ships' Radio Weather Messages Received at Dunstable

1. *British Selected Ships*												
No. reporting to Dunstable	276	279	256	289	274	268	293	258	305	262	241	281
No. of messages received	2,578	2,504	2,323	2,658	2,603	2,435	2,811	2,452	2,552	2,483	2,106	2,406
No. of groups (excluding address and ship's name)	21,673	20,600	19,386	22,179	21,880	20,374	23,713	20,515	21,688	20,038	21,827	19,744
Daily average of messages	86	81	74	86	84	81	90	82	85	80	75	78
2. *Marid Ships*												
No. reporting to Dunstable	48	57	47	59	48	49	43	41	38	36	38	40
No. of messages received	290	335	305	402	380	320	234	243	224	262	196	191
Daily average of messages	10	11	10	13	12	11	8	8	7	8	7	6
3. *Foreign Ships*												
No. reporting to Dunstable	223	239	225	182	203	180	159	177	147	131	137	170
No. of messages received	770	695	633	622	596	585	599	558	490	465	521	481
No. of groups (excluding address and ship's name)	6,301	5,532	5,056	5,002	4,631	4,629	4,481	4,351	3,925	3,714	4,035	3,621
Daily average of messages	25	22	21	20	19	19	19	19	16	15	18	15
4. *Lightvessels*												
No. reporting to Dunstable	10	10	10	11	11	10	11	13	13	13	13	13
No. of messages received	596	602	593	644	670	647	667	642	671	675	588	586
Daily average of messages	19	20	19	21	22	21	21	21	22	22	21	19

Table 3. Instrumental Equipment on loan to British Voluntary Observing Ships

1. (*a*) Full set of M.O. instruments*	478	473	477	480	476	483	488	484	491	499	501	499
(*b*) Full set of M.O. instruments, except barograph	6	6	6	5	5	5	5	5	5	5	5	5
(*c*) Full set of M.O. instruments, except barometer	6	6	6	7	6	6	6	6	6	6	4	4
2. Full Marid set of instruments	75	77	78	78	79	78	78	78	78	77	78	82
3. Full Lightvessel set of instruments	10	10	10	11	11	10	11	13	13	13	13	13
4. (*a*) Supplementary Ships, supplementary set	45	46	47	46	45	45	46	47	45	44	44	46
(*b*) Supplementary Ships, trawler set	2	2	2	2	2	2	2	2	2	2	2	2

*Including one with aneroid instead of mercurial barometer.

2. Ocean weather ships

THE BRITISH OCEAN WEATHER SHIP SERVICE

During the year each of the four British ocean weather ships completed five years' service as a weather ship. As during the previous year, and in accordance with the North Atlantic Ocean Weather Ship Agreement, the Netherlands ocean weather ship *Cumulus* carried out four periods of duty during the summer at station JULIETT. This permitted the lay-up of about 56 days of each British ocean weather ship for survey, repairs and overhaul. This joint Anglo-Netherlands operation of station JULIETT continues to be successful and a good example of international fellowship.

Station JULIETT, in position 52° 30'N, 20° 00'W, was manned on 362 days of the year by either a British or a Netherlands weather ship; the station was vacated on three days owing to ship returning to Londonderry to land patients for hospital.

Station INDIA in position 59° 00'N, 19° 00'W, was manned by British weather ships on 308 days, and although technically " on station " the ship was moved to position 60° 47'N, 14° 01'W, for special purposes during 49 days. Other absences, amounting to eight days, were occasioned by taking a sick man to hospital and because one ship had to return from station to Londonderry to replace lifeboats damaged by an exceptionally heavy sea.

The weather ships carried out a full programme of meteorological work, including surface and upper-air observations, which were transmitted to the Central Forecasting Office by W/T. Search and rescue exercises were carried out whenever practicable in conjunction with aircraft of Coastal Command, with the aim of keeping the ship's companies conversant with search and rescue organisation and drill. During these exercises, mail, newspapers and on one occasion a spare part for the radio were dropped by the aircraft.

All four British ocean weather ships underwent a complete classification survey by Lloyd's surveyors during the year.

A Decca 3 cm radar for surface navigational uses is now installed in all four ships.

The weather ships' navigational aids were regularly used by both civil and R.A.F. aircraft flying over the North Atlantic Ocean; 7,080 aircraft made use of the facilities provided by the ships during the year.

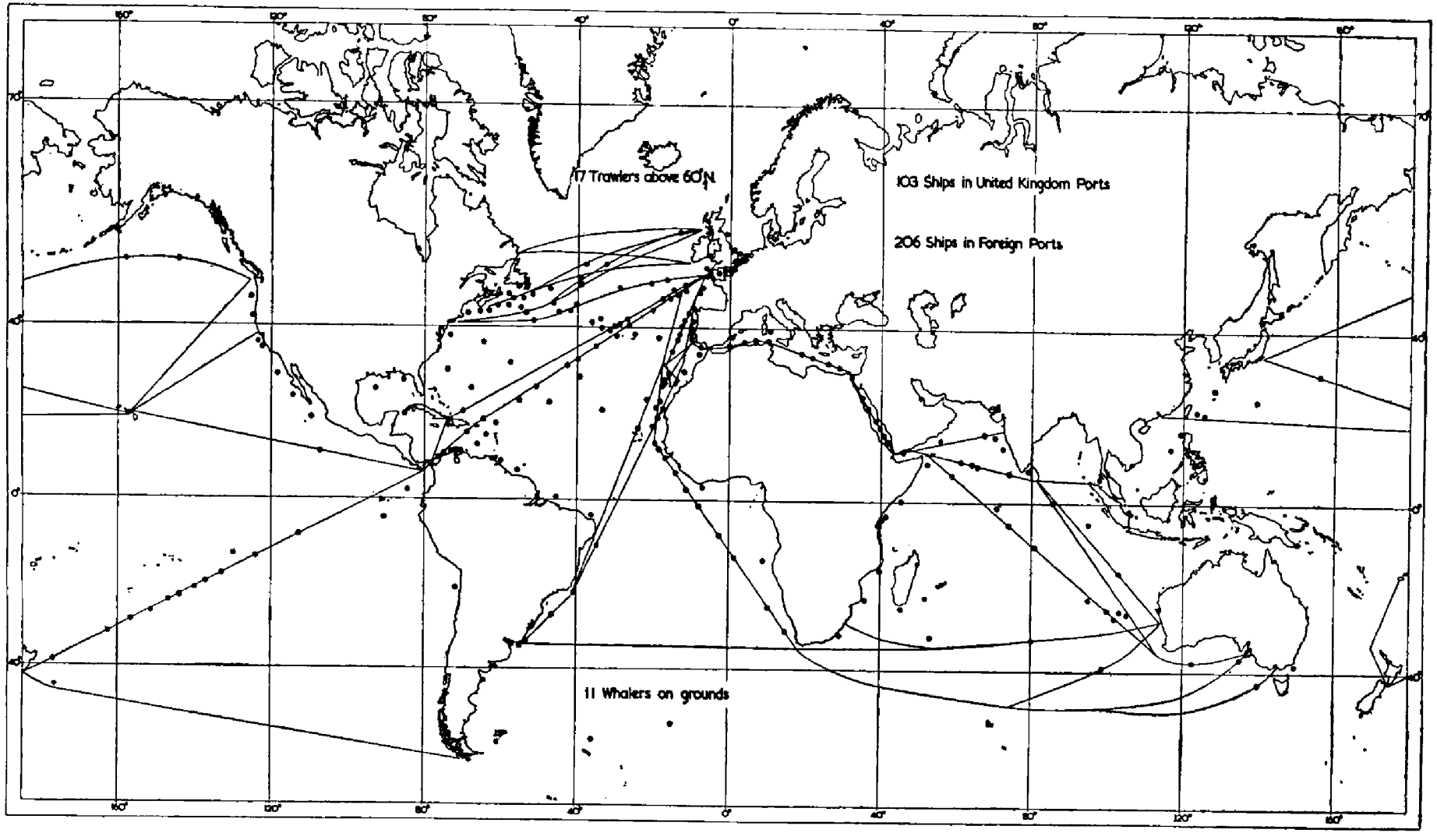
At the request of Mr. G. V. T. Matthews of Cambridge University, 20 shearwaters were taken to sea aboard *Weather Recorder* in July, 1952, and were released when the ship was more than 100 miles from any land. The first bird arrived back to its nest at Skokholm, 450 miles away, within 36 hours and a total of 18 birds returned. Oceanographical work was carried out for the Ministry of Agriculture and Fisheries and the Scottish Home Department, Fisheries Division. This included towing of plankton recorders, taking samples of sea-surface water and jettisoning of drift bottles.

Mr. D. J. Moore, Imperial College of Science and Technology, sailed in *Weather Recorder* from 18th June to 15th July, 1952, to collect data on the concentrations of condensation nuclei at sea.

Following tests made last year with immersion suits, all ships have been equipped with three such suits for rescue purposes. Tests also made last year with dan buoys resulted in dan buoy observations of wave heights being regularly recorded. Special observations of the sea water temperature gradient were made on station INDIA with a bathythermograph loaned from the Admiralty.

Logbooks and upper-air data from all four ships were microfilmed and copies distributed to the other nations signatory to the North Atlantic Ocean Stations Agreement.

During a visit to Glasgow of the U.S. weather ship *Rockaway* in September, visits were exchanged between the officers of this vessel and of the British weather ships then in harbour.



The positions of British ships which made meteorological observations on 4th March, 1953 (a day picked at random).

Search and rescue

Minor changes have been made in the radio frequencies, etc., used by British ocean weather ships, and the following radio facilities are now in operation:

(*a*) *Normal or non-emergency state*

H.F. point-to-point with Dunstable on 3005, 4380, 8705, 11525, 13365 kc/s
W/T air guard (continuous) on 3285, 6543, 8485, 11319 kc/s
V.H.F. emergency and distress on 116·1, 121·5 mc/s (as requested)
on 118·1 mc/s (continuous)
V.H.F. D.F. (on request) on 118·1 mc/s on request
on 121·5 mc/s in emergency
M.F. beacon at H+05, H+20, H+35, H+50 for 5 mins. } on 388 kc/s at station INDIA
on 370 kc/s at station JULIETT
Eureka beacon (on request) } receive on 228 mc/s
transmit on 223 mc/s
Surface search 10 cm radar (as required)
Maritime distress channel (continuous) on 500 kc/s
M.F. D.F. (as required)

(*b*) *Distress alert state* as above, except that:

V.H.F. D.F. is operated continuously
M.F. beacon is operated as required
Eureka beacon is operated continuously
M.F. D.F. is operated continuously
R.A.F. air-sea rescue guard (continuous) on 3805, 6500 kc/s

3. Marine Climatology

(*a*) COLLECTION OF OBSERVATIONS

The numbers of meteorological logbooks received each month in the Marine Branch from selected and supplementary ships were as follows:

Table 4. Meteorological Logbooks received in the Marine Branch

1952									1953		
April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.
87	75	89	95	67	64	97	99	122	121	70	100

Logbooks and upper-air data have been regularly received from ocean weather ships at stations INDIA and JULIETT. Microfilm copies of observations made at all other North Atlantic ocean weather stations and, by courtesy of the U.S.A.A.F., data from Japanese ocean weather ships in the Western Pacific, have also been regularly received.

(*b*) ANALYSIS OF OBSERVATIONS

(i) Observations from logbooks received from British voluntary observing ships and from ocean weather ships and from Naval logbooks were punched on to Hollerith cards. The total number of observations punched was 250,000.

(ii) The Netherlands Meteorological Service duplicated 650,000 Hollerith cards containing North Atlantic data.

(iii) Tabulations of all observations in the southern hemisphere made by British observing ships, totalling 39,650 observations, were supplied to the Massachusetts Institute of Technology, U.S.A., for a special project. The U.S. Weather Bureau has stated that these observations form the most extensive collection of ocean data received for this project.

The large number of Hollerith cards which are available in the Marine Branch make possible the special climatological statistics and investigations on a world-wide basis which were undertaken during the year.

4. Currents and ice

The computation of data for the preparation of surface current charts of the North Pacific Ocean, eastward of long. 160°W, was continued.

Work on the atlas of surface currents of the South Pacific Ocean, westward of long. 160°W, was nearly completed.

Assistance was given to Mr. J. M. Wordie of Cambridge University, in connection with a proposed international code for reporting ice from aircraft, for the World Meteorological Organisation.

5. Admiralty Pilots

The sections relating to surface currents were entirely rewritten for new editions of seven Admiralty Pilots, and current charts prepared to accompany these. Sections relating to ice in four of these Pilots were also rewritten. The revision of the meteorological sections of the seven Pilots required during the year was co-ordinated with the World Climatology Branch and meteorological charts were prepared for each of them.

6. Special work

Papers were produced on the following subjects:

(i) Vorticity of mean vector winds over the Atlantic Ocean.
(ii) Relation between mean vector surface wind and mean vector pressure gradient over the oceans.
(iii) Deviation between the directions of the wind at 50 ft and 2,000 ft over the oceans.
(iv) Distribution of relative humidity at sea, and of difference between saturation vapour pressure at sea-surface temperatures and vapour pressure at bridge level, as a function of air-minus-sea temperature difference and wind force.
(v) Mean seasonal resilience of the atmosphere around the British Isles, 1948–50.
(vi) A marked diurnal variation of visibility at sea.
(vii) Errors of aneroid barometers.
(viii) Summary of weather and currents at the original ocean weather stations ITEM and JIG.
(ix) Wave data for the eastern North Atlantic.
(x) The depression of 26th–27th December, 1951.
(xi) Winds at high level over Singapore.
(xii) Winds at high level over Hong Kong.
(xiii) Humidity over the sea.
(xiv) Climatic fluctuations in the Greenland and Norwegian Seas.
(xv) Short articles on various meteorological problems.

Work proceeded on the following investigations:

(i) Climatic fluctuations in the sub-Antarctic and Antarctic Oceans.
(ii) Diurnal variation of meteorological elements at the ocean weather ship stations ITEM and JIG, 1948–51.
(iii) Short period variations in meteorological elements at the ocean weather ship stations ITEM and JIG, 1948–51, based upon five-day mean values.
(iv) Occurrence of frost smoke at an ocean weather ship.
(v) Humidity over the Atlantic Ocean.

The Marine Branch has continued to co-operate with the National Institute of Oceanography.

7. Inquiries

Information, including statistical tables and charts of marine data, was prepared for other Government Departments, the Naval Weather Service and various

commercial firms. Many of these inquiries were concerned with legal cases or investigations into shipping casualties.

Information was supplied for four formal investigations into serious shipping casualties held by the Ministry of Transport during the year; in two cases the personal attendance of an officer was needed.

Information was supplied to the Poet Laureate (Mr. John Masefield) concerning weather in a small region of the North Atlantic Ocean on 4th November, 1859, and to Dr. R. B. Seymour Sewell of the Zoological Laboratory, Cambridge (formerly leader of the John Murray Expedition), about changes in marine meteorological conditions off the coasts of Somaliland, Southern Arabia and the Gulf of Aden. These are samples of the many inquiries dealt with during the year.

8. Publications

Quarterly numbers of the *Marine Observer* for April, July and October, 1952, and January, 1953, were published.

A revised reprint of the seventh edition of the *Marine Observer's Handbook* was published. The editing of a new publication *Meteorology for Mariners* and work on a new atlas *Quarterly surface currents charts of the Western South Pacific Ocean* are nearing completion. A revised edition of the atlas *Monthly meteorological charts of the Greenland and Barents Seas* is being prepared for the printer.

9. International co-operation

The Marine Superintendent is President of the Commission for Maritime Meteorology of the World Meteorological Organisation.

The Commission of Maritime Meteorology held its first session at the Royal Geographical Society in London from 14th to 29th July, 1952. Twenty-one nations were represented at this Conference, which was opened by Mr. George Ward, Under-Secretary of State for Air. The Commission adopted 12 resolutions and submitted 31 recommendations to the Executive Committee of the World Meteorological Organisation. At the conclusion of the Conference Cdr. C. E. N. Frankcom was re-elected President

The President of the Commission for Maritime Meteorology attended the Third Session of the Executive Committee at Geneva, from 9th to 27th September, 1952, in order to present the report upon the First Session of his Commission and to assist in discussions concerning the general technical work of the World Meteorological Organisation. Most of the Commission's recommendations were approved.

10. Awards

Each year the Director of the Meteorological Office presents " Excellent Awards " to the captains, principal observing officers and senior radio officers of British selected ships whose voluntary meteorological work has been considered of outstanding quality during the year. The award usually consists of a book of a scientific nature, suitably inscribed. The books selected for the purpose this year are (*a*) *The Oxford Atlas*, (*b*) *Science for the Citizen*, by Lancelot Hogben, and each recipient will be awarded one of these books. Each meteorological logbook from a selected ship when received in the Marine Branch is very carefully scrutinised, and the quality of the work classified by a nautical officer. A maximum of 100 ships are eligible for " Excellent Awards " each year. For the year 1952–53 the award is being made to the individuals mentioned in the table on pages 128 to 131.

On the Director's behalf we congratulate those whose specially good work has thus been recognised. These " Excellent Awards " are tokens of encouragement to all voluntary observers at sea. Although only awarded to a selected few, they are nevertheless one way of saying " thank you " to all those masters and officers who carry on the tradition of voluntarily making meteorological observations at sea, for the benefit of world meteorology.

MARINE SUPERINTENDENT.

EXCELLENT AWARDS 1953

Ship	Captain	Principal Observing Officer	Senior Radio Officer	Owners
Ajana	F. W. Mould	R. Brewster	G. J. Ace	Australind Steam Shipping Co., Ltd.
Alsatia	J. G. Bradley, R.D., Capt. R.N.R.	F. M. Diggle	D. Grainger	Cunard Steamship Co., Ltd.
Argyll	J. Dodds	P. F. J. Woollett	G. Richards	B. J. Sutherland & Co., Ltd.
Armadale	C. Parry	A. B. Baines	E. W. Harle	Australind Steam Shipping Co., Ltd.
Assyria	A. G. Cuthill	D. A. Davies	B. Long	Cunard Steamship Co., Ltd.
Australia Star	R. White, D.S.C.	R. Middleton	N. H. Aldersley, M.B.E.	Blue Star Line, Ltd.
Baron Fairlie	T. R. Reid	R. W. Forbes	M. V. Edge	H. Hogarth & Sons
Baron Murray	L. G. Robb	C. W. Noakes	W. Rennie	H. Hogarth & Sons
Beckenham	D. V. Cameron	G. Callister	A. Mackay	Watts, Watts & Co., Ltd.
Bellerophon	H. G. Large	M. Barwick	J. C. Wilson	A. Holt & Co.
Brasil Star	G. E. Barnard	J. E. Nolan	P. Evans	Blue Star Line, Ltd.
Cairnvalona	G. Norvell	D. W. Staddon	T. Lawson	Cairns, Noble & Co., Ltd.
Canton	E. R. Bodley, D.S.O.	J. Cludley	J. Murphy	Peninsular & Oriental S.N. Co.
Cape Howe	R. Reid	J. King	K. Pope	Lyle Shipping Co., Ltd.
Capetown Castle	H. A. Deller	J. S. Taylor	P. P. Williams	Union Castle Mail S.S. Co.
Chindwara	B. A. Rogers	F. Bill	R. C. Law	British India S.N. Co., Ltd.
City of Bristol	W. Nimmo, M.B.E.	J. Tattersall	J. Bartlett	City Line, Ltd.
City of Carlisle	W. A. Hannah, O.B.E.	D. A. Williams	P. Everett	Ellerman & Bucknall S.S. Co., Ltd.
City of Derby	G. J. Law, O.B.E.	A. Burnett	A. Hill	Ellerman & Bucknall S.S. Co., Ltd.
City of Dieppe	W. S. Doidge	M. D. Langran	J. Murdoch	Ellerman & Bucknall S.S. Co., Ltd.
City of New York	S. L. Hoare, O.B.E.	N. Paskin	T. Gaffney	Hall Line, Ltd.
Clan Chattan	J. McCrone	W. S. Clark	J. Shillabeer	Clan Line Steamers, Ltd.
Clan Davidson	T. A. Watkinson	D. S. Williamson	J. E. Appleton	Clan Line Steamers, Ltd.
Clan Lamont	J. E. Townrow	J. Brown	R. G. Davies	Clan Line Steamers, Ltd.
Clan MacDougall	P. MacMillan	A. A. Elston	C. E. C. Crew	Clan Line Steamers, Ltd.
Clan Macrae	E. Coulthart	R. S. Schooling	N. Dalzell	Clan Line Steamers, Ltd.
Coptic	R. Barns	B. Pratt	W. Beedie	Shaw, Savill & Albion Co., Ltd.
Corfu	E. F. Ferraby	D. J. Knight	J. T. F. Macdonald	Peninsular & Oriental S.N. Co.

Coulgorm ..	J. C. Skears	H. Young	J. Meaney	Lambert Bros., Ltd.
Crofter	S. H. Diamond	W. D. Aitken ..	F. Jones	T. & J. Harrison, Ltd.
Dallas City ..	D. W. Boutcher	R. M. Paton ..	D. Owen	Sir W. R. Smith & Sons, Ltd.
Darro	T. Powell	D. A. Thomas ..	J. Heenay	Royal Mail Lines, Ltd.
Defoe	W. J. M. Ankers	J. G. Roberts ..	J. Brown	Lamport & Holt Line, Ltd.
Delphic	C. L. Carroll, D.S.C., R.D., Lt.-Cdr. R.N.R.	P. G. Morgan ..	C. Ball	Shaw, Savill & Albion Co., Ltd.
Devonshire ..	A. Beharrel	R. G. Lovegrove ..	G. C. Talbot ..	Bibby Bros. & Co.
Dominion Monarch	D. Aitchison	R. J. J. Theakston ..	F. V. Harford ..	Shaw, Savill & Albion Co., Ltd.
Eastbank	C. S. Holbrook	J. Scott	A. J. Brown ..	Andrew Weir S. & T. Co., Ltd.
Edinburgh Castle	T. W. McAllen	K. J. Barry ..	J. Hodgson ..	Union Castle Mail S.S. Co., Ltd.
Empire Medway ..	H. A. Shaw	W. L. Rimmer ..	T. Holden	Prince Line, Ltd.
Empire Star ..	F. M. Johnson, M.B.E. ..	B. G. Knights ..	W. G. Fitzgerald ..	Blue Star Line
Empire Windrush	W. Wilson, O.B.E.	P. Bower	F. Fowler	New Zealand Shipping Co., Ltd.
Explorer	J. L. Curle	R. J. Abbott ..	R. S. Moss ..	T. & J. Harrison, Ltd.
Fanad Head ..	W. J. Leinster	N. K. Allwood ..	W. J. McCarthy ..	G. Heyn & Sons, Ltd.
Glaucus	H. S. Wood	G. A. Smith ..	F. M. Shannon ..	A. Holt & Co.
Glenartney ..	J. M. Anderson	V. Moore	A. Foster	Glen Line, Ltd.
Glenorchy ..	P. Cross	T. P. Welch ..	R. Bradshaw ..	Glen Line, Ltd.
Gloucester ..	J. M. Taylor	R. W. Hibble ..	L. Sayers	Federal Steam Navigation Co., Ltd.
Herefordshire ..	H. B. Peate, D.S.C., R.D., Capt. R.N.R.	H. Traynor ..	A. G. Johnson ..	Bibby Bros. & Co.
Hororata ..	E. H. Hopkins	J. Cosh	T. Green	New Zealand Shipping Co., Ltd.
Hudson Firth ..	J. Gibbons, D.S.C.	W. G. Lambert ..	A. Dunckley ..	Hudson Steamship Co., Ltd.
Huntingdon ..	P. Calcutt	D. B. Gaskell ..	A. G. Wallace ..	Federal Steam Navigation Co., Ltd.
Inverbank ..	L. W. Thorne	J. A. Niblock ..	P. C. Kelly ..	Andrew Weir S. & T. Co., Ltd.
Jessmore	R. E. Holland	K. D. P. MacAlister	J. Mathieson ..	Johnston Warren Lines, Ltd.
Kent	W. Stevens	P. R. Fletcher ..	T. Terrell	Federal Steam Navigation Co., Ltd.
Kenuta	J. D. Richards	P. A. A. James ..	C. A. de Vine ..	Pacific Steam Navigation Co., Ltd.
King William ..	J. C. Davies	E. Foley	A. Watt	King Line, Ltd.
Lanarkshire ..	A. R. Cossar	J. N. Peace ..	H. H. Mann ..	Turnbull, Martin & Co., Ltd.
Laurentia ..	A. Bankier	N. Forth	J. Robertson ..	Donaldson Bros. & Black, Ltd.
Lembulus ..	R. W. Robson	A. R. M. Graham ..	A. H. Lewis ..	Anglo-Saxon Petroleum Co., Ltd.

EXCELLENT AWARDS 1953 (*continued*)

Ship	Captain	Principal Observing Officer	Senior Radio Officer	Owners
Levernbank	T. S. Robertson	J. Scobbie	J. F. Simpson	Andrew Weir S. & T. Co., Ltd.
Linguist	W. Weatherall	A. T. Creer	J. Blackwell	T. & J. Harrison, Ltd.
Makalla	T. C. Eddy	R. E. Roberts	R. Goodson	T. & J. Brocklebank, Ltd.
Marengo	F. Ellison	H. Riley	G. Cann	Ellerman's Wilson Line, Ltd.
Margay	E. A. Prentice	M. H. S. Salter	E. Leigh	Kaye, Son & Co., Ltd.
Mulberry Hill	J. Campbell	W. F. R. Whiting	R. Power	Counties Ship Management Co., Ltd.
New Australia	K. D. G. Fisher	J. F. Mason	H. Matthews	Shaw, Savill & Albion Co., Ltd.
Newfoundland	C. H. Kenyon	C. A. Hollinshead	F. Cahill	Johnston Warren Lines, Ltd.
Nova Scotia	J. E. Wilson, O.B.E.	J. D. P. Williamson	W. C. Brock	Johnston Warren Lines, Ltd.
Novelist	T. E. Steel	J. Macaulay	R. Carr	T. & J. Harrison, Ltd.
Pacific Fortune	F. H. Perry	R. G. G. Bonney	I. R. M. Thomas	Furness Withy & Co., Ltd.
Papanui	T. Alderman	R. Loveridge	B. W. Mate	New Zealand Shipping Co., Ltd.
Paringa	H. P. Mallett	C. J. S. Morris	G. Soanes	Peninsular & Oriental S.N. Co.
Port Adelaide	C. R. Townshend	G. Bonds	O. Livermore	Port Line, Ltd.
Port Alma	H. G. B. Pinkney, D.S.O., M.B.E.	M. D. Rushan	G. S. Cavaze	Port Line, Ltd.
Port Brisbane	H. Steele, O.B.E.	A. A. Chilvers	A. A. Parratt	Port Line, Ltd.
Port Fairy	J. A. Fairbairn	A. R. Turnbull	R. Herriotts	Port Line, Ltd.
Port Jackson	P. S. Ball	J. R. King	R. C. Crompton	Port Line, Ltd.
Port Lincoln	J. L. Porter	J. A. McManus	P. J. McKeon	Port Line, Ltd.
Port Phillip	E. E. Roswell	D. Burgess	B. McGovern	Port Line, Ltd.
Port Pirie	F. W. Bailey, M.B.E.	A. M. Crozier	W. Sharkey	Port Line, Ltd.
Port Wellington	E. J. Syvret	I. M. McKay	J. B. French	Port Line, Ltd.
Potaro	E. N. Giller, M.B.E.	G. Rogers	G. Morris	Royal Mail Lines, Ltd.
Rakaia	C. J. Cordran	R. E. C. Cooke	P. H. Broome	New Zealand Shipping Co., Ltd.
Rangitane	T. L. Maltby	J. D. Hellings	C. L. Lambe	New Zealand Shipping Co., Ltd.
Rangitata	G. Kinnell, O.B.E.	A. W. Elliott	J. Grant	New Zealand Shipping Co., Ltd.
Ruahine	A. I. Robertson, C.B., R.D., Cmde. R.N.R.	J. Cosker	J. Heath	New Zealand Shipping Co., Ltd.

Salacia	T. S. Graham	W. G. McKean	W. W. Docherty	Donaldson Bros. & Black, Ltd.
Salween	H. V. V. Poole	T. F. Field	J. H. Brown	P. Henderson & Co.
Silveroak	E. Palmer	C. H. Goddard	D. Stewart	Silver Line, Ltd.
Silversandal	A. N. Hirst	G. Lightfoot	P. B. Killeen	Silver Line, Ltd.
Southern Opal	A. F. Baikie	J. McLean	T. Johnson	Chr. Salvesen & Co.
Strathnaver	C. E. Pollitt	P. Aspinall	W. Miller	Peninsular & Oriental S.N. Co.
Tectus	F. Leask	I. Higgins	R. Constantine	Anglo-Saxon Petroleum Co., Ltd.
Tekoa	J. D. Bennett	R. B. Hood	T. M. Jones	New Zealand Shipping Co., Ltd.
Torr Head	M. Kennedy	R. Harris	W. Kirwan	G. Heyn & Sons, Ltd.
Trelissick	M. E. Sadler	D. R. Jenkins	B. Connell	Hain Steamship Co., Ltd.
Treworlas	W. T. Evans	P. N. Sadler	B. R. Reid	Hain Steamship Co., Ltd.
Waiwera	L. J. Hopkins	C. H. Tucker	J. M. Downie	Shaw, Savill & Albion Co., Ltd.
Warkworth	N. Thompson, M.B.E.	A. P. Hurst	J. Cooper	R. S. Dalgliesh, Ltd.
Winchester Castle	G. W. B. Lloyd	J. D. Macmillan	R. Brew	Union Castle Mail S.S. Co., Ltd.

The Marine Observers' Log

July, August and September

The Marine Observers' Log is a quarterly record of the most unusual and significant observations made by mariners.

The observations are derived from the logbooks of marine observers and from individual manuscripts. Photographs or sketches are particularly desirable.

Responsibility for each observation rests with the contributor.

PLUMED FRUITS

Mediterranean Sea

M.V. *Warwick Castle.* Captain L. H. Farrow. Marseilles to Gibraltar. Observer, Mr. R. J. Taylor, 2nd Officer.

18th July, 1952, 1800 G.M.T. A continuous moderately thick stream of wind-blown dandelion " puff-balls " passed over the ship for a period of about 30 min. The nearest land was Cape Crews, distant 55 miles, bearing 247°; the nearest weather shore was the Pyrenees Orientales, distant 65 miles, bearing 270°. Air temp. 75°F, wet bulb 66°, sea 66°. Wind 270°, 30 kt. Course of ship 222°, 17 kt. Sky cloudless with good visibility. Rough sea with moderate short swell.

Position of ship: 42° 41′N, 04° 29′E.

Note. This observation was forwarded to the Director of the Royal Botanic Gardens at Kew, whose comment was as follows:

" Thank you for your letter including the note about the plumed fruits. Such data regarding distribution are always worth recording. Is it possible that any specimens of these fruits were preserved so that specific identity of the plant might be ascertained? Data regarding the actual distance of carriage from the source of origin are all too infrequent and consequently it is very desirable that the specific identity of the plant concerned should be ascertained."

(Will officers please note the desirability of backing up an observation with a specimen, wherever possible.)

BIRD LIFE

Atlantic Equatorial Waters

M.V. *Parima.* Captain G. S. Grant, R.D., Cdr. R.N.R. Rio Grande do Sul to Las Palmas.

4th July, 1952, 1030 G.M.T. A bird about the size of a seagull landed on top of the foremast, remaining for 10 minutes. It then flew off and was last seen in a w'ly direction.

Description: Beak, long and pointed, black, quite broad at face of bird. Head, black. Neck, black. Throat, white, extending to form a white ring on face at top of beak. Back, black, smooth feathers. Front, black, except under wings where

white. Wings, long and tapering; smooth black feathers on top; tops slightly fan-shaped; white underneath at body, changing to grey at tips. Tail, black. Legs, yellow, Feet, webbed, yellow. In all cases the colour black was a " light " black. When flying the wings made a quick motion as do those of skua gulls.

Position of ship: 01° 00'N, 29° 12'W.

Note. The above observation was sent to the Chairman of the Royal Naval Bird Watching Society, who commented as follows:

" The bird was without doubt a brown booby (*Sula leucogastra*) and belongs to the family which includes gannets and boobies. The characteristic features of this family as a whole are:

> Large long-winged sea birds; stout conical pointed beaks; fairly short necks; stout bodies; legs are short and all toes connected by webs; on throat they have a small pouch of naked skin and there is also an area of naked skin on the face. The majority are found in the tropics and are known as boobies, a term applied to them by seamen on account of their apparent stupidity when settled on a ship (they will often allow themselves to be captured). They feed on fish and capture these by diving for them.

" You will already notice the similarity in Captain Grant's description to the general family. The detailed description of the brown booby is as follows:

> Head, neck, breast, upper parts—dark chocolate-brown; primary wing feathers black; white on abdomen under wings; median under wing coverts white; bill varies from bluish to yellowish; feet pale yellow, webbed; naked skin on throat and on face on top of beak greenish-yellow.

" The brown booby is the commonest of the boobies to be found between the tropics of Cancer and Capricorn in the ocean belt all round the world, but the booby does not often stray very far from land. An American, Charles Rawlins, who made a study of the way in which a knowledge of birds could help castaways from ships sunk or aircraft crashes in the last war wrote: ' First you must find your island and your guide will be the birds. . . . The range of the red-footed booby is only 100 miles from land. The brown booby should bring a cheer from all hands. If land cannot be sighted on the day you see the brown booby, the late afternoon should guide you as to the direction of land. Brown boobies always start for home early, and one has only to watch their departure flight to get a good indication of where the land bears.' It seems that this also fits in with Captain Grant's report.

" There is nothing very unusual or exciting in the appearance of a brown booby in the vicinity of St. Paul's Rocks. If any bird of this size is to be encountered the brown booby would be the most likely. One might also see frigate birds (man-o'-war birds) and tropic birds, but their description is quite different."

The Chairman of the Royal Naval Bird Watching Society then went on to say that any reports sent to the Society were not just filed, but were plotted on Ocean Bird Distribution Charts, after being identified. In this instance it was found that a report of the same species within 60 miles of the above observation was sent in from M.V. *John Biscoe* in November, 1951.

SHARKS

North Atlantic Ocean

O.W.S. *Weather Observer.* Captain N. F. Israel, D.S.C. At ocean weather station JULIETT.

25th July, 1952, while lying stopped in calm weather, one large and two small sharks were seen in the vicinity, cruising about on the surface; they could be clearly seen " stalking " seagulls and eating anything within reach, including potato peel, orange peel, etc. A meat hook was sharpened, baited with beef and lowered from the stern on a heaving line to almost 3 ft below the surface. At 1400 one was caught; it was 7½ ft long and weighed 98 lb.

Position of ship: 52° 14'N, 19° 53'W.

26th July, 1952, lying stopped in calm weather, more sharks were seen. This time a proper barbed hook had been fashioned from a meat hook, and a fathom of whistle wire was attached before the heaving line. At 1400 a 6½ ft, 53 lb shark was caught.

Position of ship: 52° 25'N, 20° 07'W.

28th July, 1952, lying stopped in calm weather, a 7 ft, 76 lb shark was caught. Its stomach was found to contain baked potatoes, tomatoes, potato peel, bacon rind, raw liver, cooked liver and a bar of soap, thus showing that the shark had been following the ship for some time.

Position of ship: 52° 27'N, 20° 21'W.

Remarks. In the five years during which this ship has been on duty at ocean weather stations, no sharks have previously been observed, except an occasional basking-shark. It is interesting to note that all the sharks were caught between 1300 and 1500, although fishing was continuous night and day; at no other times did sharks approach the ship. They all had a few parasites embedded in the skin. Specimens of these, together with two heads and the contents of a stomach, were preserved at the request of the Natural History Museum and sent to them at the end of the voyage. Several photographs were taken, two of which are shown opposite page 148.

MARINE LIFE

Eastern Pacific Ocean

M.V. *Durango.* Captain H. Wright. Vancouver to San Francisco. Observer, Mr. L. P. Fenner, 4th Officer.

17th August, 1952, 1600 P.S.T. The vessel encountered large numbers of jelly-fish, apparently a small species of Portuguese man o' war. While floating in the unbroken sea they were a light grey in colour, but turned a deep bright blue on contact with the white foam from the ship's wash. The fish were in patches of varying size and density, and were observed continually throughout the remainder of the day, and for the subsequent ten days. Weather overcast but clear. Rippled sea with low swell.

Position of ship: 47° 10'N, 125° 00'W.

Malta Channel

S.S. *City of New York.* Captain S. L. Hoare, O.B.E. Birkenhead to Port Said. Observer, Mr. N. Paskin, 2nd Officer.

25th September, 1952. From daylight till 1230 large shoals of small immature flying fish were observed, also considerable quantities of greenish-brown jellyfish.

Position of ship: 36° 34'N, 13° 21'E.

ERUPTION OF DIDIKAS VOLCANO

Luzon Strait

S.S. *Cameronia.* Captain A. C. Johnston. Sydney to Hong Kong. Observer, Mr. W. Hallum, 4th Officer.

6th August, 1952, 2110 G.M.T. On approaching Babuyan Islands from the SE a thick column of steam was observed to be issuing from the Didikas Rocks, reaching to a height of 5,000 ft. At this point the rocks were 25 miles distant. While passing the Didikas Rocks at a distance of 13 miles only one rock was discernible. The mushroom-topped, dense pall of condensed steam continued to be seen up to a distance of 50 miles NW of the rocks.

Strong tide rips were observed to be setting between E and SE whilst passing between Babuyan Island and Kalayan Island.

T.E.S. *Tectus.* Captain F. Leask. Singapore to Richmond, California. Observers, Master and Officers.

29th August, 1952, sunset. On approaching Didikas Rocks a plume of smoke or steam was seen to be rising from the summit and trailing along the directions of the wind. On closer approach the rocks were seen to be much higher than the nearby Ginapak Rock.

The three sharp-pointed Didikas Rocks had apparently merged together and appeared as a single conical-shaped island, estimated to be about 560 ft high. Clouds were illuminated by a lurid glare, and at regular intervals of about 3 min streams of steaming lava were seen pouring from the top of the island and running down the sides. The glare from the summit was still visible at a distance of 21 miles.

Position of ship, off Didikas Rocks: 19° 05′N, 122° 12′E.

Note. The Didikas Volcano appeared suddenly in 1856 and there has been no eruption since that date until 1952, but it is stated in the *Admiralty Pilot, China Sea*, Volume III, that clouds of steam were seen issuing from Didikas Rocks in April, 1900. The three Didikas Rocks, 200, 215 and 270 ft high, were all that remained of the original volcano. In the eruption of 1952 the rocks were merged into a single conical-shaped island, as observed by T.E.S. *Tectus*.

The U.S. *Hydrographic Bulletin* in several issues in 1952 contained observations made earlier than those given above. In March, 1952, the American S.S. *Bright Star* observed a flaming cone 480 ft high with great clouds of black smoke and steam, large red-hot boulders being erupted and falling into the sea. On 25th June the new volcano formed a cone 750 ft high, completely covering the three original rocks. The base of the cone was estimated to be 1,000 yards long on the north-south axis and 1,500 yards on the east-west axis. It was reported on 12th July that the volcano was no longer erupting violently. The observations of S.S. *Cameronia* and T.E.S. *Tectus* appear to indicate that some increase of activity occurred in August.

CURRENT RIP

North Atlantic Ocean

M.V. *Britannic*. Captain R. Sell, R.D., R.N.R. Liverpool to New York. Observer, Mr. L. K. Goodier, Senior 1st Officer, and Mr. M. H. Blackmon, Senior 3rd Officer.

8th August, 1952, 0600 G.M.T. Broken water was sighted ahead which proved to be a strong current rip, approximately N to S. When the vessel entered this broken water she was forced 20° to port off her course, although helm was put hard to starboard. The effect of the current was experienced for about 3 min. Wind w'ly, gentle. Air temp. 68°F, sea temp. 77°. Course 259°, speed 17 kt.

Position of ship: 41° 19′N, 64° 40′W.

Note. At the time of this observation the ship was on or near the northern boundary of the Gulf Stream. Current rips might be caused at the direct convergence of the warm Gulf Stream and the cold Labrador Current. Frequently, however, there is a region between the main currents where eddies and interlacing tongues of warm and cold water occur. Current rips might therefore be formed when any two bodies of water meet, providing there is a sufficient difference in their original directions.

The sea temperature recorded was obviously taken in Gulf Stream water before the current rip was passed through. It would add to the value of an observation such as this if the sea temperatures were taken on both sides of the current rip.

RAPID CHANGES OF SEA TEMPERATURE

Eastern Pacific Ocean

M.V. *Rangitiki*. Captain A. E. Lettington, O.B.E., D.F.C. Wellington to Balboa. Observer, Mr. D. C. B. Swyer, 3rd Officer.

9th July, 1952, 0400–2400 S.M.T. The following table shows the rapid changes in sea temperature during the day.

0400, 70°F	1300, 75°F	1600, 76°F
0800, 69°F	1400, 76°F	2000, 79°F
Noon, 65°F	1500, 76°F	2400, 79°F

Position of ship at noon: 00° 13′N, 88° 03′W.

Note. Over an extensive area, eastward and westward of the Galapagos Islands, more or less sudden changes of sea surface temperatures are recorded from time to time. In this region the cold water of the Peru Current is mixing with warmer water to form the beginning

of the South Equatorial Current of the Pacific Ocean. In this mixing process streaks or patches of water of different temperatures lie adjacent to one another at times. On 15th August, 1947, M.V. *Orari* recorded a temperature fall of as much as 18°F, from 78° to 60°, over a period of 12 hours, the position at 1515 G.M.T. being 00° 19′S, 96° 11′W.

DISCOLOURED WATER

Caribbean Sea

S.S. *Paringa*. Captain H. P. Mallet. Cristobal to Curaçao. Observer, Mr. C. J. S. Morris, 3rd Officer.

12th September, 1952, 1550 G.M.T. While passing Punta de Gallinas a very marked change in the colour of the sea was observed. A well-defined line of demarcation stretched N to S from horizon to horizon, with deep blue to the W and pale green to the E. The change back to the original blue was gradual and began to have effect after 4 miles, with no distinct line of demarcation. Air temp. 84°F, sea temp. 80°, no change.

Position of ship: 12° 36′N, 71° 40′W.

S.S. *Royal Star*. Captain H. W. McNeil. Panama to Curaçao. Observers, Mr. E. A. Davies, 3rd Officer, and Mr. B. I. Abbott, 4th Officer.

11th September, 1952, 1630 G.M.T. While rounding Punta de Gallinas a clear line of demarcation (SSW–NNE) was observed which appeared to stretch from the coast to the S to the horizon in the N. The water to the W of this line was of normal appearance, temperature 79°F, that to the E'ward was a vivid light blue in colour, similar to that over coral and white sand shoals, temperature 82°. The warmer water was distinctly cloudy and appeared to be carrying fine sand or mud in suspension. While steaming E'wards the water to the E of the line gradually darkened and lost much of its cloudy appearance.

Position of ship at 1630: 12° 31′N, 71° 40′W.

Note. Observations of marked changes of the colour of the sea in the region of Punta de Gallinas have been previously published. In the October, 1952, number of this journal (Vol. 22, page 189) the observation of M.V. *Rangitoto* was given, and in the January, 1951, number (Vol. 21, page 7) that of M.V. *Port Chalmers*. These four observations make an interesting comparison and show at once that the direction of the line of demarcation off this point varies very much. This is shown, with the sea surface temperatures, as follows:

14th January, 1950, *Port Chalmers*, NW–SE, sea blue to west of line, 75°F, light-green to east, 68°.

27th October, 1951, *Rangitoto*, W–E, sea dark blue to north of line, cloudy green to south. Sea temperatures not given.

11th September, 1952, *Royal Star*, SSW–NNE, sea blue to west of line, 79°, vivid light blue to east, 82°.

12th September, 1952, *Paringa*, N–S, sea deep blue to west of line, 80°, green to east, 80°.

The blue or dark-blue water is the water of the main part of the Caribbean Sea, the greenish water is presumed to be water which has upwelled along part of the coasts of Venezuela and Colombia and which should in general be cooler, unless it has been on the surface a sufficiently long time to be warmed up to the general sea temperature. It will be seen that the above three observations provide one where the green water was cooler than the blue, one where both were of the same temperature and one where the green water was warmer than the blue.

It is interesting to note the difference in this respect between the observations of the *Royal Star* and *Paringa*, made at one day's interval. Further observations in this region will be welcome.

Gulf of Panama

S.S. *Akaroa*. Captain J. W. Hart. Balboa to Auckland. Observer, Mr. H. F. Singleton, 3rd Officer.

1st September, 1952, 1700–2200 G.M.T. Near Cabo Mala large areas of discoloured water were observed, mainly olive-green, occasionally dirty brown. The

water gave off an unpleasant fishy smell which persisted throughout the day. Various pieces of vegetation, such as small tree trunks and logs, were seen, but the phenomenon is thought to have been that known as " stinking water " or Aguaje. Air temp. 83°F, sea temp. 84°. Smooth sea, moderate s'ly swell. Wind nil.

Position of ship: 06° 50'N, 80° 45'W.

Note. Water from two separate sources enters the large bay of which the Gulf of Panama forms the head. The first is the warm water of the Equatorial Countercurrent of the North Pacific Ocean and the second is a branch of the cold Peru Current setting northward along the coasts of Ecuador and Colombia. Resulting from these inflows there is an outflow from the region of Cape Mala in a south-westerly direction. There is a good deal of variability of current set and drift in the bay and it is probable that bodies of warmer and cooler water may meet at times. If the temperature difference were sufficiently large this might result in the destruction of fish and plankton. We have, however, no information that this occurs frequently or on a large scale in this region and the name Aguaje is usually applied to the much more widespread destruction of animal life off the coast of Peru, which occurs when the warm Holy Child Current extends further south of the Equator than it usually does.

Gulf of Aden

S.S. *Theliconus.* Captain W. R. Main. Fao to Gibraltar. Observer, Mr. B. Webster, 3rd Officer.

9th August, 1952, 0500 G.M.T. Sea water was observed to be of a greenish hue such as is found in shallow water, although depth was estimated to be 800 fathoms. About 1 hour later the colour slowly changed to a dark olive-green, and half an hour later still a dull brown, with a slight tinge of dark green. There was a pungent smell of seaweed which even penetrated to the cabins. The colour of the water became darker until 0715 when it began to return to its natural colour. From 0500 the sky was only partly cloudy, and the sun was shining all the time. Wind s'ly, force 2–3; sea and swell s'ly, 12 ft. Current set 000°. Air temp. 76°F, sea temp. 72°. Two samples of sea water were taken for examination in the United Kingdom.

Position of ship at 0640: 14° 41'N, 51° 48'E.

Note. The above observation, with a sample of the sea water, was sent to the Marine Biological Association, Plymouth. The following summary is from a report received from Dr. T. J. Hart who examined the sample.

There is a record of a similar discoloration of the sea, a little further west, at a centre of maximum upwelling intensity, on 15th August, 1931, but no water-sample was taken. It is generally agreed that upwelling of relatively deep water is at a maximum off the south Arabian coast in August and that there is a little or none (except perhaps some close inshore on a very small scale) during the north-east monsoon season. The upwelling water markedly lowers the surface temperature and is relatively rich in nutrient salts, favouring extensive phytoplankton development.

The sample sent by S.S. *Theliconus* indicates a heavy diatom development with one species, *Pleurosigma directum, Grunow,* strongly dominant, forming over 96 per cent of the organisms present. This is unusual, as this diatom is rarely taken in large numbers. The remaining 4 per cent of the organisms included 20 other kinds, mainly diatoms, a list of which was given by Dr. Hart.

PHOSPHORESCENCE

Gulf of Aden

S.S. *Clan Chattan.* Captain J. McCrone. Aden to Cochin. Observer, Mr. W. S. Clark, 2nd Officer.

29th August, 1952, 2235 G.M.T. The vessel passed through a sharply defined line, extending across the horizon 350°–170° into an area of exceptionally brilliant phosphorescence. Air and sea temperatures fell rapidly from 89°F and 79° to 83° and 75° respectively on entering the area. Air temperature at 0000 on 30th was 81° while sea temperature remained constant. From 0000 both temperatures commenced to rise slowly and at 0100 air temp. was 83°, sea 77°, while the

phosphorescence gradually dispersed. At 0200, when the phosphorescence was no longer visible, the air temp. was 86° and sea 81°.

When in the brightest area the lights of passing ships were only distinguished with difficulty. Wind N, force 2–3. Sea slight. Cloud 2/8 Sc, excellent visibility.

Position of ship at 2235: 12° 34′N, 43° 32′E.

Note. Considerable changes of sea temperature are frequently observed in the region of the Straits of Bab-el-Mandeb during the south-west monsoon season and these may at times be large. Several observations were published in the *Marine Observer*, Vol. 17, July, 1947, page 9, the greatest of these being changes of 19°, 22° and 23°F. The explanation is that the monsoon wind draws away some of the surface water of the Gulf of Aden, which has to be replaced by the upwelling of cooler water from subsurface layers. Such upwelling water is usually rich in nutrient substances and this probably accounts for the fact that in the observation of S.S. *Clan Chattan* the organisms producing phosphorescence were found in the area of cooler water.

Persian Gulf

R.M.S. *Dara*. Captain J. H. Curry. Dubai to Bahrein. Observers, the Master, Mr. D. E. P. Colley, 3rd Officer, and Mr. M. S. Shrauti, Cadet.

15th September, 1952, 1812 G.M.T. A patch of phosphorescence was observed approximately 3 miles distant, covering an area of about 3 square miles in a locality charted as " Overfalls ". The phosphorescence was so bright and the wave crests so brilliant that in extending itself above the apparent horizon the illumination gave all the appearance of sea-front lights of any coastal town, being brighter even than the Southend illuminations. There was no land, nor were there any shoals in the near vicinity. Various patches of phosphorescent water in N–S lines of 1 mile in width were traversed the same night but none compared in brilliancy with the above-mentioned patch. Air temp. 90½°F, sea 92°. Bar. 1005·5 mb. Wind 280°, 15 kt.

Position of ship: 25° 31¼′N, 54° 19′E.

Arabian Sea

S.S. *Esperance Bay*. Captain N. C. Smith. Colombo to Aden. Observer, Mr. W. Newport, 2nd Officer.

15th July, 1952, 2010 G.M.T. The vessel ran into an area of phosphorescence, at least 20 miles across from E–W. A sample of water was obtained and found to contain hundreds of small luminous marine life, known as plankton. Although the wind remained force 7, the sea moderated considerably in this area, as though the marine life acted as oil on the water.

Position of ship: 12° 11′N, 58° 38′E.

Note. A number of observations received in the past suggested that in some cases the occurrence of phosphorescence has a calming effect on the sea surface. To some extent this may be illusory if the general brightness is sufficient to render the wave crests invisible. The matter is yet undecided, but it is quite possible that the phosphorescent organisms secrete mucous or oily substances which tend to calm the sea. In an observation made by M.V. *Cheshire* in the Red Sea on 14th March, 1951, published in this journal Vol. 22, January, 1952, page 7, a strong, oily, fish odour was present.

M.V. *Caledonia*. Captain D. Blair. Bombay to Karachi. Observer, Mr. D. Lamont, 2nd Officer.

19th August, 1952, 0120 S.A.T. The vessel passed through an area of apparent phosphorescence, the sea seemed to be lit up by quick intermittent flashes of a pale blue light apparently just beneath the surface. The flashes seemed to sweep across the bows from port to starboard. When in the centre of the area the light was so intense that visibility was limited, as the flashes of light then appeared to be above as well as below the surface, but no source could be observed. At 0140 a species of firefly was picked up which had a bright flashing blue light in its tail. The insect has been preserved on board.

Position of ship at 0120: 23° 43′N, 67° 06′E.

Indian Ocean

S.S. *Benvannoch*. Captain J. C. Allan. Penang to Colombo. Observer, Mr. G. Reid, 2nd Officer.

15th September, 1952, 1930 G.M.T. Exceptionally strong phosphorescence was observed in an irregular line a half cable wide and about 6 miles long, with general direction NNE–SSW, and had the appearance of breakers. Later at short intervals three similar phenomena were seen, each successive one decreasing in intensity.

Position of ship: 05° 48′N, 81° 20′E.

TYPHOON

East China Sea

S.S. *Empire Fowey*. Captain C. E. Pollitt. Pusan to Hong Kong. Observer, Mr. G. E. Harris, 3rd Officer.

16th August, 1952. On leaving Pusan reports of a typhoon (Karen) were being received, from which it was concluded that a typhoon was then to the SW of Okinawa, travelling in a NNW'ly direction at about 10 knots. Course was shaped for Formosa Strait at maximum speed so as to pass ahead of the typhoon. By noon on 16th wind was NE'N force 7, and a falling barometer. At 1600 wind backed to N'E force 8–9, with a very rough sea and driving rain. It was estimated that the centre was about 100 miles away. At 1800 the barometer began to rise and the wind backed to N'W force 8, but by midnight the wind had dropped to force 5 and the ship was rapidly leaving the influence of the typhoon. The following extract is taken from the ship's deck logbook.

TIME	WIND	BAROMETER	AIR TEMP.	REMARKS
16th August				
0800 ..	NE'E 5	1001·5	84	Overcast, ship lurching to SE'ly swell.
1000 ..	NE 7	1000·3		
1200 ..	NE'N 7-8	997·9	83	Overcast, moderate rain. Rolling and pitching to long ENE swell, rough N seas.
1400 ..	NE'N 7	993·2		
1600 ..	NE 8	990·1	77	Overcast continuous rain. Rolling to very rough WNW'ly seas.
1700 ..	N'E 8 9 in squalls	989·6		
1800 ..	N'W 8	990·1		
1900 ..	NW'N 8	991·7		
2000 ..	NW 7	992·1	78	Overcast, frequent heavy rain. NE'ly swell, very rough sea.
2200 ..	NW'W 7	995·6		
17th August				
0000 ..	WNW 6-5	998·2	77	Overcast with rain earlier. Rolling moderate short NE'ly swell, rough NW'ly seas.
0200 ..	W 6-5	999·8		
0400 ..	WSW 5	1000·4	81	Overcast.
0600 ..	SW 3	1001·1	83	Cloudy.

Position of ship at 0900 on 16th : 28° 28′N, 123° 22′E.

Note. The above observation was sent to the Director of the Royal Observatory, Hong Kong, who sent us the following comments.

" The tropical storm Karen was first located 120 miles distant from 15°N, 132°E, on 12th August, 1952. It appears to have followed a steady NNW'ly track, and on 15th August the centre passed about 50 miles west of Okinawa giving winds of 50 kt. At this stage the storm track curved slightly towards the west.

" On the 16th August, the plain-language weather reports from the *Empire Fowey* at 0700 and 0900 G.M.T. were plotted on the 0600 chart. These two reports, together with those

made by *San Jorge* at 0600 and 0800 while hove-to at 30° 24′N, 123° 00′E, in a 52 kt NNE wind, were used in conjunction with reports from Okinawa and two islands in the southern Liuchius to fix the position of the storm with some degree of certainty within 60 miles of 28° 06′N, 125° 06′E. At 1200, weather reports from the *Empire Fowey* (1100 in plain language) and the *San Jorge* were the only two received in Hong Kong from ships in the area of the storm circulation, but from these it was apparent that Karen was then heading north at 10 kt.

" This storm did not recurve and accelerate but continued on a northerly track with decreased intensity until it reached Korea, where it recurved to the NE over the peninsula, continued across the Sea of Japan and finally degenerated into an area of low pressure over Hokkaido on 20th August."

THUNDERSTORM

Caribbean Sea

S.S. *Manistee*. Captain W. J. Dodd. Kingston to Rotterdam. Observer, Mr. P. F. H. Furnival, 2nd Officer.

5th July, 1952, 1800–1830 G.M.T. During a severe thunderstorm the truck of the foremast was struck by forked lightning. The truck was fractured in four places and fell to the deck. Sparks were observed in the radio office. The magnetic compasses were unaffected. When the mast was examined later it was found that lightning had also struck the links and a shackle of the heavy lift derrick, giving both a bluish tinge and the appearance of having been annealed.

Position of ship: 16° 39′N, 85° 05′W.

Note. Modern ships are apparently not very often struck by lightning. Excluding two cases in which it was doubtful whether the ship was actually struck, six observations of ships being struck, in every case on the foremast, were published in the 16 pre-war volumes of the *Marine Observer*. In the post-war volumes, an observation by M.V. *King Robert*, also struck on the foremast, was published in Vol. 22, January, 1952, page 10. With the present observation this gives a total of eight cases of ships being struck on the foremast. In addition there is the observation of M.V. *Armadale*, also published on the same page as that of M.V. *King Robert*. On this occasion the ship was not actually struck but the following remark was made: " It was noticed that once again the foremast took the brunt and the sparks could be seen travelling along the steel wire guides for the oil lamp."

Lt.-Cdr. Philpott, of the Marine Branch, informs us that when he was 4th Officer of S.S. *Port Melbourne*, lying in Victoria Docks, London, in June, 1930, the ship's foremast was struck by lightning, the upper part being severely damaged.

The only other observation that has been received is from the O.W.S. *Weather Recorder* published in the *Marine Observer*, Vol. 19, July, 1949, page 170. In this case the ship was struck in the bows, a shower of sparks radiated from the vicinity of the windlass and an explosion occurred similar to the sudden " blowing off " of a boiler.

LIGHTNING

South Indian Ocean

M.V. *Port Jackson*. Captain P. S. Ball. Durban to Melbourne. All observing officers.

Night 12th–13th September, 1952. A thunderstorm commenced at 1145 G.M.T. on 12th with very heavy rain at intervals until about 0600 on 13th. From 2350 for almost 3 hours vivid forked lightning, the most vivid yet seen by the observing officers, was continuous and decidedly painful to the eyes. It penetrated polaroid sun glasses and lighted up the horizon all round the ship. Apart from the intensity of the lightning, its duration of 18 hours was phenomenal, and thunder was very heavy and close.

Position of ship at midnight G.M.T., 12th–13th September: 30° 44′S, 41° 54′E.

HAILSTORM

English Channel

S.S. *Selby*. Captain J. Collier, R.D., Cdr. R.N.R. Goole to Ghent. Observer, Mr. D. L. Battrick, R.N.R., Chief Officer.

6th July, 1952, 1625 G.M.T. Experienced hailstorm with hailstones varying in diameter from ¼ in. to 1¼ in. Some were spherical with a " mothball " appearance (Fig. 1); others were discus-shaped with a " mothball " centre surrounded by

Fig. 1

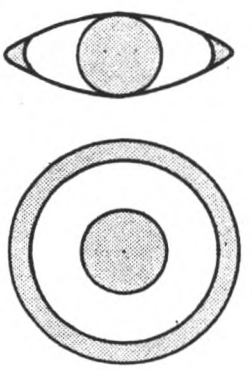


Fig. 2

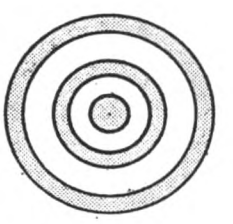


Fig. 3

translucent ice with a white circular edge (Fig. 2). Most stones were uniform in construction and some broken ones showed at least five thicknesses of ice (Fig. 3).

Position of ship: Off Flushing.

LINE SQUALL

Atlantic Ocean

S.S. *Alsatia*. Captain J. G. Bradley, R.D., R.N.R. Le Havre to New York. Observers, Mr. C. J. Burtinshaw, 2nd Officer, and Mr. D. A. Davies, 3rd Officer.

8th August, 1952. At 0100 G.M.T. towering Cb had been observed far away to port gradually closing on vessel with occasional flashes of lightning. At 0205 the wind began to increase rapidly from SW and by 0210 had reached force 6–7. At 0215 the vessel was directly under the line squall and torrential rain commenced with wind veering to W's, and lightning flashes but no thunder. By 0221 the vessel had passed out of the squall, rain ceased, sky began to clear ahead and wind became WSW force 4–5; the barometer began to rise sharply. The radar screen revealed that the line squall was lying SW–NE and extended for 16 miles, with width 1½ to 2½ miles. The squall was very clearly seen on the screen.

Position of ship at 0200: 42° 02′N, 58° 08′W.

Note. This squall was associated with the cold front of a small shallow depression, which at 1200 on 8th August was centred in lat. 47°N, long. 48°W.

WATERSPOUT

North Atlantic Ocean

M.V. *Daleby*. Captain J. Kenny. Mobile to Liverpool. Observer, Mr. E. H. Williams, 2nd Officer.

27th August, 1952, 1725 G.M.T. A waterspout was observed forming, bearing 040°(T), 1 to 2 miles distant. The first indication came from the sea which became greatly agitated, and nearly a minute elapsed before a funnel-shaped column began to descend from a large Cu, estimated at 1,000 ft. The column, 10–15 ft in

diameter, descended to about 250 ft from the sea and was seen to be rotating counter-clockwise at about 30 times per minute. It then began to move s'ward and slowly became bent, the lower part leading ahead of the cloud and receding into it. By 1732 it had disappeared into the cloud. No precipitation observed.

Position of ship: 43° 58'N, 45° 36'W.

UNUSUAL VISIBILITY

English Channel

M.V. *Durango.* Captain H. Wright. Kingston to Plymouth. Observer, Mr. B. Y. Harrison, 2nd Officer.

19th September, 1952, 2000 G.M.T. The loom of Lizard Head Light was clearly seen at a distance of 68 miles, the standard range of the light being 21 miles. At the same time the looms of Pendeen Watch Tower Light (range 20 miles), Longships and Wolf Rock Lights (range of each 16 miles) were observed at distances of 58, 52 and 46 miles respectively. Height of eye, 42 ft.

Position of ship: 49° 34'N, 06° 42'W.

ABNORMAL REFRACTION

Off Nova Scotia

R.M.S. *Nova Scotia.* Captain J. E. Wilson, O.B.E. Boston to Halifax. Observer, Mr. J. H. Williams, 2nd Officer.

6th July, 1952. During the morning abnormal refraction was observed along the coastline of Nova Scotia. On approaching Sambro Light vessel from the S, a ship was sighted to the N on a SW'ly course, at an approximate distance of 10 miles and appeared as in Fig. 1. The radar was not running at the time and a more

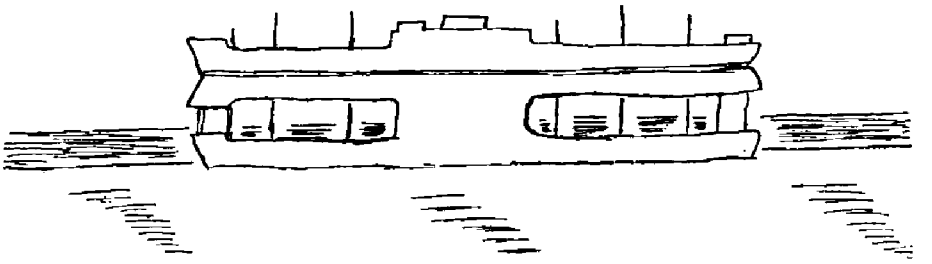


Fig. 1

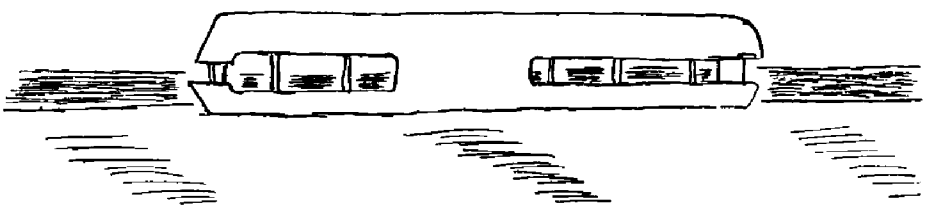


Fig. 2

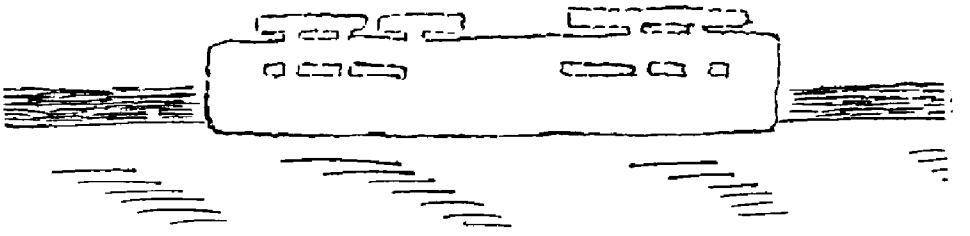


Fig. 3

accurate distance cannot be given. After an interval of about 8 minutes the vessel assumed the shape shown in Fig. 2 and, after a further 5 min, as in Fig. 3, before finally assuming its normal shape. The ships at the time were approaching one another at a speed of about 18 kt. Air temp. 64°F, wet bulb 56°, sea 45°. Light variable winds, no cloud. Course 015°, 16 kt.

Position of ship: 44° 20′N, 63° 31′W.

Note. This is an example of superior mirage, which was described in the notes attached to the observations of S.S. *Beaverglen* and M.V. *Winchester Castle* in the April, 1953, number of this journal. In the present observation, Fig. 1 clearly shows the inverted and direct images above the object, while in Fig. 2 only the inverted image is seen. In Fig. 3 the whole is so distorted that it is not possible to separate the image or images from the object.

North Atlantic Ocean

S.S. *Bristol City.* Captain A. L. Webb, O.B.E. Sydney (C.B.) to Swansea. Observers, the Master and Mr. R. Whitman, 3rd Officer.

18th September, 1952, 2000 G.M.T. A vessel approaching end-on at 15 miles, with hull just visible, appeared to have elongated masts and funnel (Fig. 1). At

Fig. 1

Fig. 2

Fig. 3

10 miles the hull also became enlarged and the bow wave, very prominent (Fig. 2), appeared to move up and down the length of the stem. At 5 miles the vessel resumed normal shape. At the same time and position a second vessel, when 10 miles to the s'ward, suddenly developed an inverted image which lasted for 15 min before disappearing (Fig. 3). A few minutes later the wake appeared, very prominent, resembling heavy surf which lasted another 10 min (Fig. 4). Before

Fig. 4

Fig. 5

passing out of view the vessel appeared to take on a " block " shape (Fig. 5), only resuming its normal shape at brief intervals as the vessel dipped in the slight swell. Sea temp. 53°F, air temp. 52°, wet bulb 50°. Calm sea, slight swell.

Position of ship: 48° 32′N, 44° 50′W.

Note. This observation is also one of superior mirage and in Fig. 3 the inverted image is clearly seen. In Figs. 1 and 2 the vertical extension and distortion known as looming is well marked.

Gulf of Cadiz

S.S. *Livorno*. Captain G. A. Schuur. Ceuta to Middlesbrough. Observer, Mr. B. Partridge, 3rd Officer.

8th July, 1952, 2100 G.M.T. Unusual visibility: Cape St. Vincent Light was observed at 53 miles, Cape Carvoiero at 37 miles, Cabo Sta Maria at 23 miles and Vila Real de San Antonio Light at 42 miles. The nearest light, Santa Maria, appeared as three distinct lights, vertically disposed. All lights appeared as lights and not looms. At 2130 G.M.T. St. Vincent and San Antonio disappeared and Carvoiero appeared as a loom. At sunset the sun appeared in various shapes, including a large mushroom. At 1800 air temp. 75°F, sea temp. 71°.

Position of ship at 2100: 36° 36′N, 07° 57′W.

Indian Ocean

M.V. *Port Dunedin*. Captain W. Eastoe. Fremantle to Aden. Observer, Mr. B. B. Skrimshire, 3rd Officer.

19th July, 1952, 0000 G.M.T. With the moon at an altitude about 10° a second crescent appeared slightly above but inside the actual crescent moon.

Position of ship: 03° 52′N, 56° 33′E.

Note. This is an interesting observation. There have been many observations of objects at low altitudes being doubled such as a ship on or near the horizon, also the horizon itself, or the sun, moon or a bright planet near or at the time of setting. The present observation is more unusual since the moon's altitude was as much as 10° and it indicates an exceptional degree of abnormal refraction.

FOG BOWS

North Atlantic Ocean

S.S. *Alsatia*. Captain F. E. Patchett. Le Havre to New York. Observers, the Master and Mr. D. A. Davies, 3rd Officer.

18th September, 1952, 1145 G.M.T. A fog bow was observed over an arc of 60°, from 260°–320°. At first it was whitish, but by 1205 some colours became discernible. Shortly after more bows began to form inside the primary bow and by 1212 there were four complete bows equidistantly placed with the innermost bow lying almost along the horizon.

Although each succeeding bow appeared a little less brilliant than the previous one the colours were discernible in all of them. At 1215 the three innermost bows disappeared, and by 1220 the primary bow had also disappeared.

At 1200. Dry and wet bulb temp. 65°F, sea temp. 66°. Cloud 3/8 Ac and Ci. Visibility 1 mile, fog clearing. Thick low-lying fog from 1000.

Position of ship at 1200: 42° 26′N, 56° 25′W.

GREEN AND RED FLASHES

North Atlantic Ocean

M.V. *Coptic*. Captain H. M. Thompson. Aruba to London. Observer, Mr. B. J. Pratt, 4th Officer.

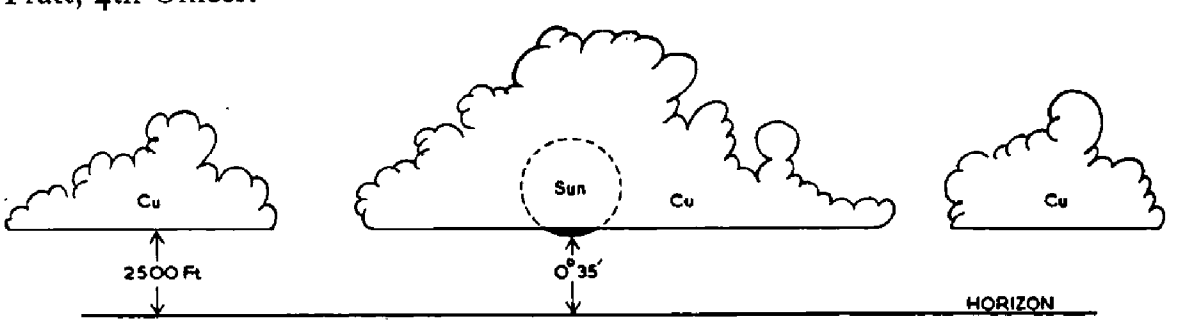


Fig. 1. 2208 G.M.T.

The shaded area of the sun was a very distinct brilliant red for a fraction of a second.

21st August, 1952, sunset. As the sun's lower limb, altitude 35′, appeared to emerge at 2208 G.M.T. from the base of a large Cu (estimated at 2,500 ft), a brilliant red flash was observed. As the sun's disc sank below the horizon (2215) a brilliant bluish-green flash was seen from its upper limb.

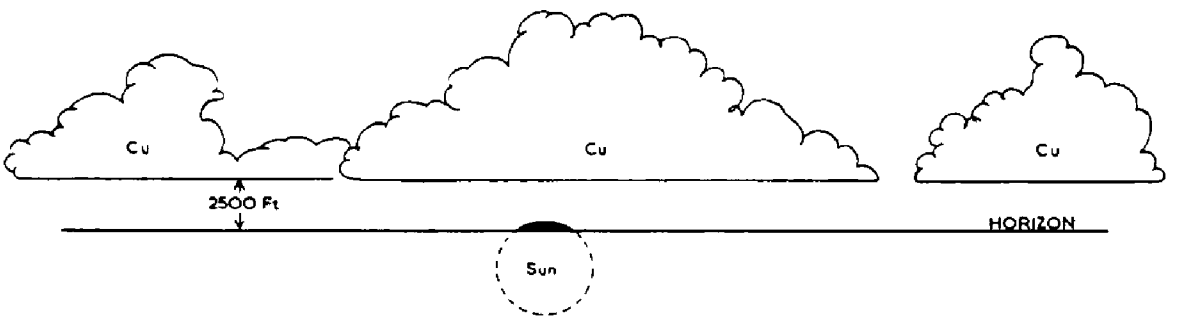


Fig. 2. 2215 G.M.T. The shaded area of the sun was a brilliant bluish-green.

Position of ship: 26° 20′N, 55° 40′W.

Note. This observation is of very great interest, observations of the red flash being extremely rare, though it might be seen more often if it were definitely looked for in suitable conditions. In conditions of normal refraction the sun's upper limb is bordered by a narrow rim of bluish-green or green colour and the lower limb by a similar rim of red colour, when the sun is near the horizon. These rims are wider and therefore more likely to be observed in conditions of abnormal refraction. The upper green rim gives the well-known green flash when the sun sinks below the horizon; almost all the sun is hidden before the green coloration can be seen. The green flash has also been seen when the sun goes down behind a cloud with a sufficiently well-defined upper edge. The red flash can never be seen at the horizon since the red rim would be the last part of the sun to rise and it would be lost in the sun's general light. It can therefore only be seen in the circumstances of the present observation, when almost all the sun is hidden by a cloud with a well-defined lower edge at which the emerging red rim is seen. The only previous observation of which we can find a record is that made by Mr. Whitmell in 1906, on the sun's emergence below a horizontal bank of cloud. The phenomenon has been artificially produced by inserting a metal diaphragm to block out part of the field of view of a telescope and watching the sun's image emerge from behind this.

AURORA

North Atlantic Ocean

S.S. *City of Carlisle.* Captain W. A. Hannah, O.B.E. Liverpool to Montreal. Observer, Mr. D. A. Williams, 3rd Officer.

25th–26th July, 1952. From dusk to dawn a brilliant display of aurora was seen with a well-defined arc stretching 295°–045°, with greatest altitude 14°. The dark segment was clearly defined on the western half of the arc, but poorly so on the eastern half. The brilliant ray displays lasted approximately 15 min on each occasion, when they attained an altitude of over 25°, after commencing at the eastern end of the arc and spreading towards the centre. Several bright bands were observed to run horizontally from the eastern side to the centre where they terminated in broad rays. The arc had a tendency to pulsate throughout, and towards midnight many diffused patches were seen. Sky cloudless, wind 290° force 3, air temp. 61·5°F.

Position of ship at 0001 G.M.T., 26th July: 46° 12′N, 58° 00′W.

METEORS

Atlantic Equatorial Waters

M.V. *Defoe.* Captain W. J. M. Ankers. Santos to Las Palmas. Observer, Mr. J. G. Roberts, 3rd Officer.

21st July, 1952, 2355 G.M.T. A large and exceptionally bright meteor was observed falling from an altitude of about 55°–25°, bearing 328°(T), at an angle of

about 15° from the vertical. The meteor was brilliant white and left a bluish-green trail until just before reaching the lower altitude, when it was seen to burst into several bright parts, two of which appeared to continue falling for about 1½ sec and left faint greenish trails. Within 3 sec of disappearing this meteor was followed by another of almost equal brilliancy; the first lasted for 4–5 sec and the second 2–3 sec.

Position of ship: 00° 12′N, 31° 12′W.

New Zealand Waters

M.V. *Delane*. Captain E. L. Jermyn. Wellington to Panama. Observer, Mr. J. W. Chatfield, 3rd Officer.

27th July, 1952, 0830 G.M.T. Two large meteors were observed within 5 min of each other, bearing 010°(T) and altitude about 50°. Both objects appeared to fall perpendicularly at a slow apparent rate and gave the appearance of flares. They were yellow in colour, gave a brilliant light over a wide area, and gradually faded.

Position of ship: 39° 50′S, 179° 08′E.

About three hours later (1125) another meteor of even larger appearance was observed, bearing 150°(T) and altitude about 60°. This one was brilliant red in colour with an exceptionally long trail. It appeared to explode three different times, and at the third was extinguished.

Position of ship: 39° 35′S, 179° 32′E.

During the nights of 26th and 27th July, 1952, a large number of meteors were observed.

Note. The prevalence of meteors observed on these two nights seem to indicate the existence of a meteor shower, but the showers visible in the southern hemisphere are not yet as well known as those seen in northern latitudes. The most interesting part of this observation is the appearance of two meteors within five minutes of each other on 27th July in the same part of the sky, the meteors being similar in rate and appearance. This indicates that they were small bodies of similar chemical composition travelling together through space before entering the earth's atmosphere. They were on the same course or, more probably, parallel courses, and were comparatively close together and moving at the same speed.

Indian Ocean

S.S. *Empire Fowey*. Captain C. E. Pollitt. Colombo to Singapore. Observer, Mr. G. E. Harris, 3rd Officer.

29th July, 1952, 1657 G.M.T. A meteor of magnitude −3 or −4 and about the same apparent size as the planet Saturn, was observed moving rapidly across the sky from bearing 045°–150°(T) at an altitude of about 50° for a period of 2 or 2½ sec. Its flight left a twin trail about 10° in length of a tungsten light colour, with some apparent fluorescence.

Position of ship: 05° 58′N, 94° 46′E.

South Indian Ocean

S.S. *Mahia*. Captain C. W. Sendall. Melbourne to Durban. Observer, Mr. J. K. Wyles, 2nd Officer.

10th September, 1952, 2105 G.M.T. A meteor was observed bearing 225°, altitude 25½°, which passed through W below Diphda (β Ceti) altitude 48½° and disappeared at bearing 345°, altitude 43°. The object was sighted for 21 sec, with a trail about 8° long. It commenced to break up 12 sec before disappearing, when pieces were seen to fall off at right angles to line of flight. The meteor was of considerable brilliance, exceeding −2; it finally appeared to explode. Within the following 15 min several minor meteors were observed in the same area and may have formed part of a shower.

Position of ship: 30° 43′S, 85° 33′E.

Bay of Bengal

S.S. *Malika*. Captain W. J. Williams. Belawan to Sandheads. Observers, the Captain and Mr. W. Dyson, Chief Officer.

11th September, 1952, 1351 G.M.T. A brilliant green to red meteor was observed, which lit up the whole of the NW sky. It started at an altitude of 45°, bearing 010° approx., broke in two at altitude 10°, bearing 319°, and disappeared at an altitude of 5° in a brilliant white flash.

Position of ship: 17° 52′N, 90° 42′E.

METEORS AND SCINTILLATION OF STARS

North Atlantic Ocean

S.S. *Hildebrand*. Captain J. Whayman, D.S.C., R.D., R.N.R. Belem to Lisbon. Observers, the Master and Mr. C. P. Moore, 3rd Officer.

29th September, 1952, 2330 G.M.T. A brilliant meteor was observed close to Jupiter and above it, leaving a very bright trail. It was observed about 15 min later that Jupiter was twinkling in colour. By using binoculars the colours were seen to be very clear, mainly deep red and green with some blue, but it was the brilliance of the colours that was so striking. The altitude of Jupiter was 29°.

Position of ship: 22° 35′N, 20° 58′W.

30th September, 1952, 2230 G.M.T. A brilliant meteor was seen to fall toward NE, slowly with long trail. About half an hour later, first Capella then Aldebaran showed brilliant colours, blue-green and blood red, which turned to red, pale green and orange in the later stages. The whole phenomenon lasted about ¾ hour.

Position of ship: 26° 42′N, 16° 30′W.

On 2nd October the phenomenon of 30th September was repeated with greater brilliance by all stars between bearings 040° and 070° and altitude approximately 23°, while Jupiter at bearing 087° and altitude 26° was unaffected. The scintillation was remarkable, plain to the naked eye but magnificent through binoculars. The main colours observed were cobalt blue, rich blood red, bright grass green and occasional yellow and orange.

Note. This is an interesting observation, as the degree of colour scintillation seems to have been quite abnormal and to have persisted for several days. Furthermore, it is most unusual for the degree of scintillation to vary on different bearings, as was observed on 2nd October. The planet Jupiter generally shows no scintillation at all, on account of its having the largest disc of all the planets. Although the disc is not seen without optical aid, it usually prevents any visible scintillation unless the planet is very near the horizon.

ABNORMAL RADAR PROPAGATION

North Atlantic Ocean

O.W.S. *Weather Watcher*. Captain F. A. Elston. On station INDIA.

24th July, 1952, 0005 G.M.T. A group of land echoes was observed between bearings of 355° and 008°(T). The nearest range was 92 miles and the furthest 100 miles. These echoes remained quite steady for a period of 10 min until 0015 and then faded, disappearing by 0017. Observation was carried on for another hour but the echoes did not reappear. The amplitude of the echoes varied between 2 to 8 times "A" scan noise level.

At 0001, air temp. 52·5°F, dew point 49·3°, sea temp. 53·2°. At 0300, air temp. 52·9°, dew point 51·4°, sea temp. 53·0°.

Small inversions were present on the upper-air soundings as follows:

1400 G.M.T. 23rd July, 1952

Pressure (mb) ..	1014	1000	973	938	733	713
Temperature (°F)	55	56	56	61	45	46
Dew point (°F) ..	55	56	56	61	39	37

0300 G.M.T. 24th July, 1952

Pressure (mb) ..	1000	986	620	600	422	418
Temperature (°F)	53	54	20	23	−08	−07
Dew point (°F) ..	47	45	10	06	−29	−29

The radar was on operation on long pulse. Pulse repetition rate 500/sec, wavelength 10 cm, aerial height 46 ft.

From an inspection of charts it is suggested that these echoes were from peaks of high land behind the coastline of Iceland between Mount Hekla (4,747 ft) on the west to Braidamerkur Jokull (6,947 ft) on the east, 260 miles to the north of the ship.

Position of ship: 58° 58′N, 19° 15′W.

Note. This observation was sent to the Operational Research Group of the Ministry of Transport who supplied the following comments.

" This seems to be a clear case of second trace echoes. With a pulse repetition rate of 500/sec the interval between each pulse is 1/500 sec which is equivalent to a radar range of 164 nautical miles. If 164 miles is added to 92 and 100 we get 256 and 264 miles, which if plotted on a chart would be very near to the south coast of Iceland. Because the pulse repetition rate of the radar need not have been exactly 500/sec there will be a leeway of a few miles, making it impossible to pinpoint the target. It may be high land as Capt. Elston suggested; this at least would give a good strong echo which could travel 264 miles. It is interesting that the duct or inversion causing the anomalous propagation lasted only 10 minutes and then dispersed.

" This case is of interest to students of propagation because of the measured air temperatures at different heights (barometric pressures), showing that there was, in fact, a temperature inversion both on the previous afternoon and on the same morning (three hours after the event). Yet the false echoes only lasted about 10 minutes. Possibly a greater temperature inversion existed during this short time."

ABNORMAL MAGNETIC VARIATION

North Atlantic Ocean

M.V. *Britannic.* Captain R. Sell, R.D., R.N.R. Liverpool to New York.

30th September, 1952, 1932–2052 G.M.T. Abnormal magnetic variation was experienced during this period. At 1932 the deviation was 3°E, at 2024 it was 1°W. The deviation then increased to 4½°W by 2040 and decreased to the normal deviation of 3°E at 2052. Numerous bearings of celestial bodies were obtained having both E'ly and W'ly hour angles and the gyro compass remained correct throughout. No abnormal static was experienced.

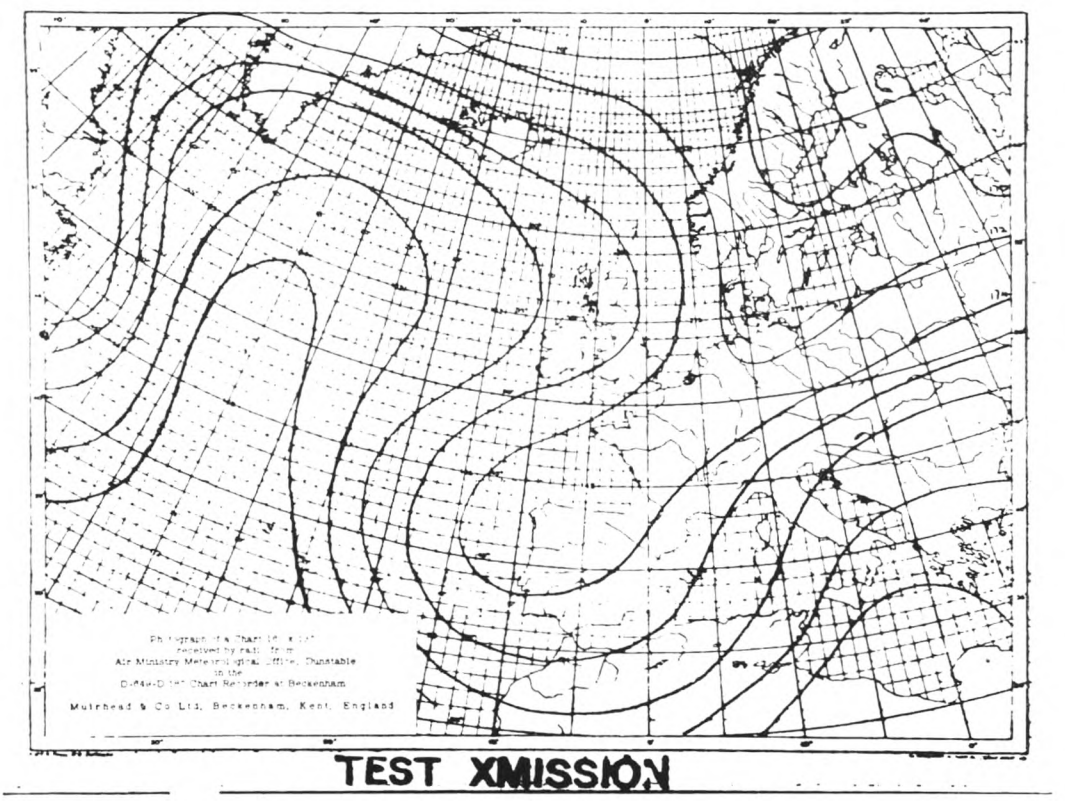
Position of ship: at 1932, 50° 52′N, 18° 21′W; at 2052, 50° 50′N, 18° 55′W.

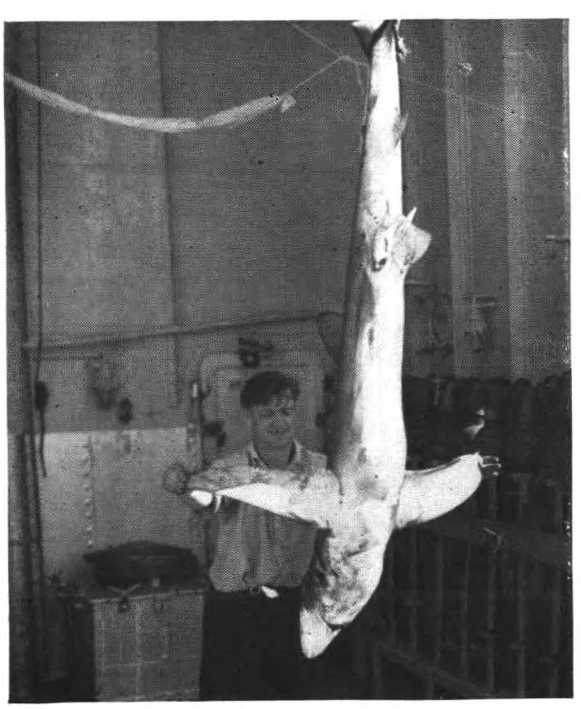
Note. The above observation was forwarded to the Admiralty Compass Observatory, Slough, who sent us the following comments:

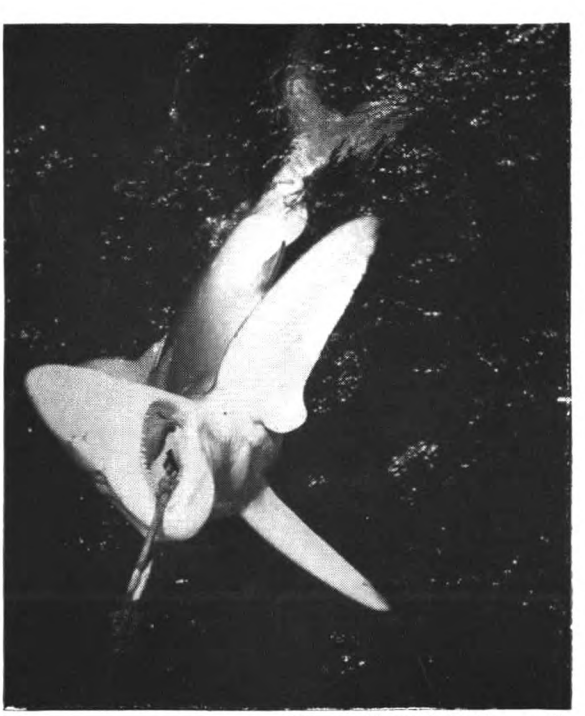
" Various lines of investigation have been pursued in the hope of providing an explanation for the phenomena reported by the *Britannic.* The Department of Scientific and Industrial Research, however, have stated that their records give no indication of any magnetic storm which might have accounted for abnormal variation of the magnitude referred to on 30th September, 1952. Moreover, the Marine Superintendent of the Cunard White Star Line states that the *Britannic* is no longer fitted with degaussing coils, temporary and inadvertent energisation of which might have introduced a change in deviation.

" It can only be supposed therefore that this was an instance of a temporary change in deviation, brought about by some local agency such as movement of magnetic material in the neighbourhood of the compass, or a temporary fault in the binnacle lighting circuit if the latter were not non-inductively wound."

Opposite page 148







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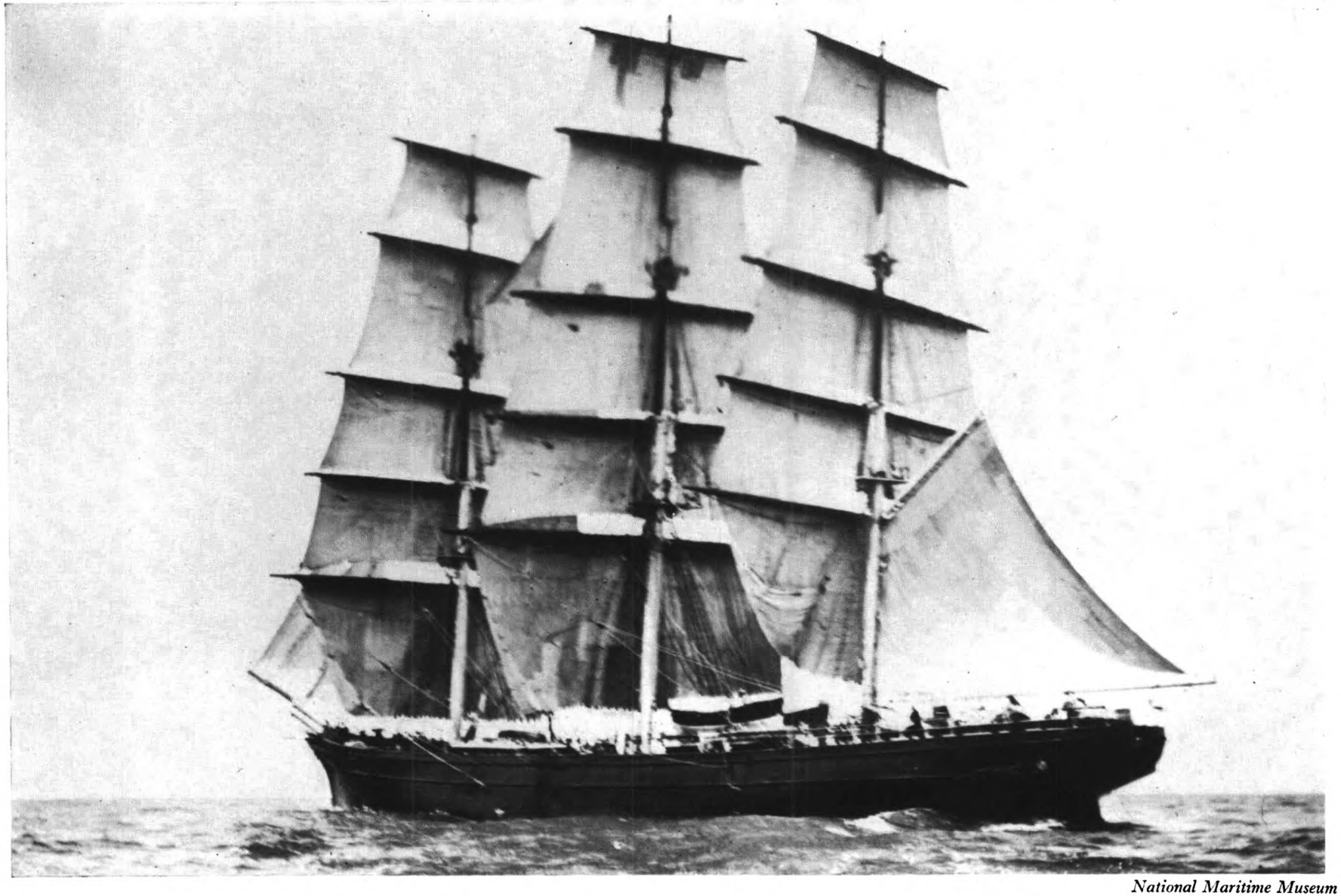
Two photographs of a shark caught from O.W.S. *Weather Observer* at station JULIETT, 28th September, 1952. (See report on page 134.)

Opposite page 149



National Maritime Museum

The *Cutty Sark*

Capt. R. Woodget took the above photograph himself in the 1880s. The camera was situated on a bridge of planks lashed to the lifeboats, and the ship was not hove-to while the photograph was being taken.

The *Cutty Sark*

By the time these notes appear in print an appeal will have been launched for funds to enable the clipper ship *Cutty Sark* of London to be preserved as a lasting memorial of the once fine fleet of deep-water sailing ships of the British Mercantile Marine. It is hoped that she will be permanently berthed in a small dry dock, in much the same way as H.M.S. *Victory* is kept at Portsmouth. The proposed site is near the National Maritime Museum at Greenwich.

The ship will probably be completely re-rigged to her original sail plan, so that she will appear as in her prime as a racing tea clipper.

The Marine Branch of the Meteorological Office has a number of weather logs of the same period, but none, unfortunately, from the *Cutty Sark*. Meteorological logbooks of other clippers built in the same year, 1869, are still preserved, however, among them the logs of the *Thomas Stephens* (1875), *Golden Fleece* (1873), *Doune Castle* (1871) and the *Otago* (1870). The last-named was in 1888–89, the first command of Joseph Conrad.

Readers of this journal may find the track chart on page 150 of interest. It shows the route of the ship *Otago*, a composite ship like the *Cutty Sark*, and about the same tonnage, on a voyage from London to Otago, New Zealand, in 1870. Otago harbour is where the town of Dunedin now stands. The positions are plotted for every five days and are taken from the above-mentioned meteorological logbook. The passage took 82 days, which would be considered good. Her master, Captain G. R. Stuart, noted in the log that while running the easting down, the ship had averaged over 12 kt for a whole week.

The reason for the track being so far west in the South Atlantic was, of course, the SE trade winds, through which the ships sailed close-hauled on the port tack. Sailing ships usually ran their easting down in about lat. 40° to 50°S, the Roaring Forties, in order to get the benefit of strong westerlies.

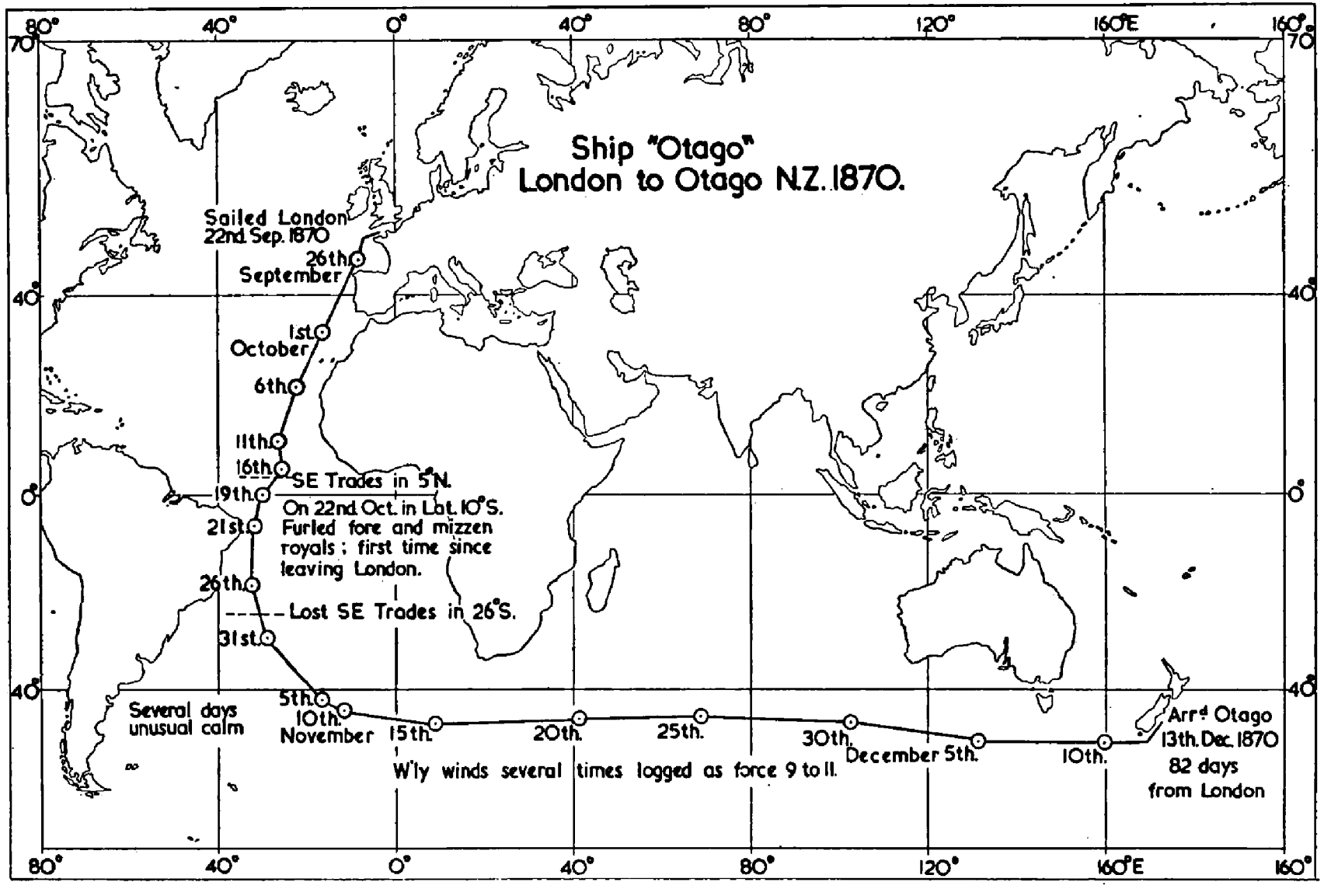
The *Cutty Sark* was built at Dumbarton by Messrs. Scott & Linton in 1869. Her measurements are: 962 tons gross, length 224 ft (O.A.), beam 36 ft and moulded depth 22·5 ft. Her main truck was 151 ft above the water-line in her original rig and the length of the bowsprit and jibboom was 60 ft.

According to Basil Lubbock in his book *The Log of the Cutty Sark*, she was " the fastest ship that ever left the ways ", and he quotes several men who sailed in her to substantiate the statement. This, however, is in doubt, although there is certainly evidence that on occasions she logged as much as $17\frac{1}{2}$ kt and overtook and passed some of the full-powered steamers of her day. In 1880 she sailed from New York to London river in 19 days, which although not a record, is pretty good going. The average speed made good was thus about $7\frac{1}{4}$ kt, but this is not necessarily a measure of a sailing ship's speed over the ground owing to the variable and uncertain courses which such vessels have to steer during the passage.

The *Cutty Sark* and the *Thomas Stephens* arrived at Melbourne on 11th February, 1873, both having made the passage from the English Channel in 69 days.

In 1895 a Portuguese firm, Ferreira & Co. of Lisbon, bought the ship. Her life-long rival the *Thermopylae* was also bought by the Portuguese, and so was the *Thomas Stephens*.

After being dismasted off the Cape of Good Hope in 1916 the *Cutty Sark* was re-rigged as a barquentine. She was bought by Captain W. D. Dowman in 1922 and so came back under the British flag. He later re-rigged her as a ship again, and she lay in Falmouth harbour until 1938 when she was brought to London river, where appropriately enough she was moored close to the training ship *Worcester*, to which school she had been presented for training purposes by Mrs. Dowman, the widow of Captain Dowman. There the *Cutty Sark* has remained until the present day (March 1953) except for a short spell at moorings up-river during the Festival of Britain. She is a beautiful little ship, and if she can be preserved in good condition she will no doubt prove a great attraction to seamen and to all others who are interested in ships. C. H. W.


Ship "Otago"
London to Otago N.Z. 1870.
Sailed London
22nd Sep. 1870
26th
September
1st
October
6th
11th
16th
SE Trades in 5°N.
19th
On 22nd Oct. in Lat. 10°S.
Furled fore and mizzen
royals; first time since
leaving London.
21st
26th
Lost SE Trades in 26°S.
31st
5th
10th
November
15th
20th
25th
30th
December 5th
10th
Arrd Otago
13th. Dec. 1870
82 days
from London
Several days
unusual calm
W'ly winds several times logged as force 9 to 11.
80°
40°
0°
40°
80°
120°
160°E
160°
70°
40°
0°
40°

Ocean Meteorological Networks

One of the primary tasks of the Commission for Maritime Meteorology (World Meteorological Organisation) is to organise an adequate network of meteorological observations from the oceans. The purpose of such an ocean network is to provide information about the weather at sea, so that Meteorological Services can issue weather bulletins and forecasts for shipping, aviation and all other national and international interests. In order to study the weather, a picture of the meteorological situation covering ocean and continents is essential and it is only by international co-operation that such a picture can be provided. As far as the land is concerned, the density of the network merely depends upon the available funds, the communications and the individuals available to man the stations. In desert regions, or in relatively inaccessible portions of the far north, or far south, there are obvious physical difficulties of manning the stations, so the network in such places ashore is necessarily sparser than that in a country like the United Kingdom, where a station can be established almost anywhere without difficulty. Ashore, the topographical features and other factors cause a considerable diurnal range of meteorological elements as well as local peculiarities whereas at sea the diurnal range of the elements is relatively very small and there are, of course, no topographical features, and with a few notable exceptions no specific " local " peculiarities. Thus, the network over the oceans does not need to be as dense as that ashore. Nevertheless the oceans are so vast and so important meteorologically that it is most desirable that as dense a network as possible should be achieved. The only way in which one can achieve a network in the oceans is to enlist all the available shipping and at the same time to establish meteorological stations on as many suitable islands as is practicable. In areas where shipping is known to be relatively sparse, islands can do much to make up the deficiency.

The most important source of meteorological information from the oceans is that provided by merchant shipping, and the " selected ship " scheme, which is co-ordinated by the W.M.O., is the medium whereby the voluntary co-operation of shipping in this work is achieved. The density of the network provided by ships under this scheme is necessarily controlled by the movements of world trade. At the Conference of the Commission for Maritime Meteorology in July, 1952, this question was given very careful consideration and three maps were prepared:

Map 1: showing the positions of all known selected ships on a given day.

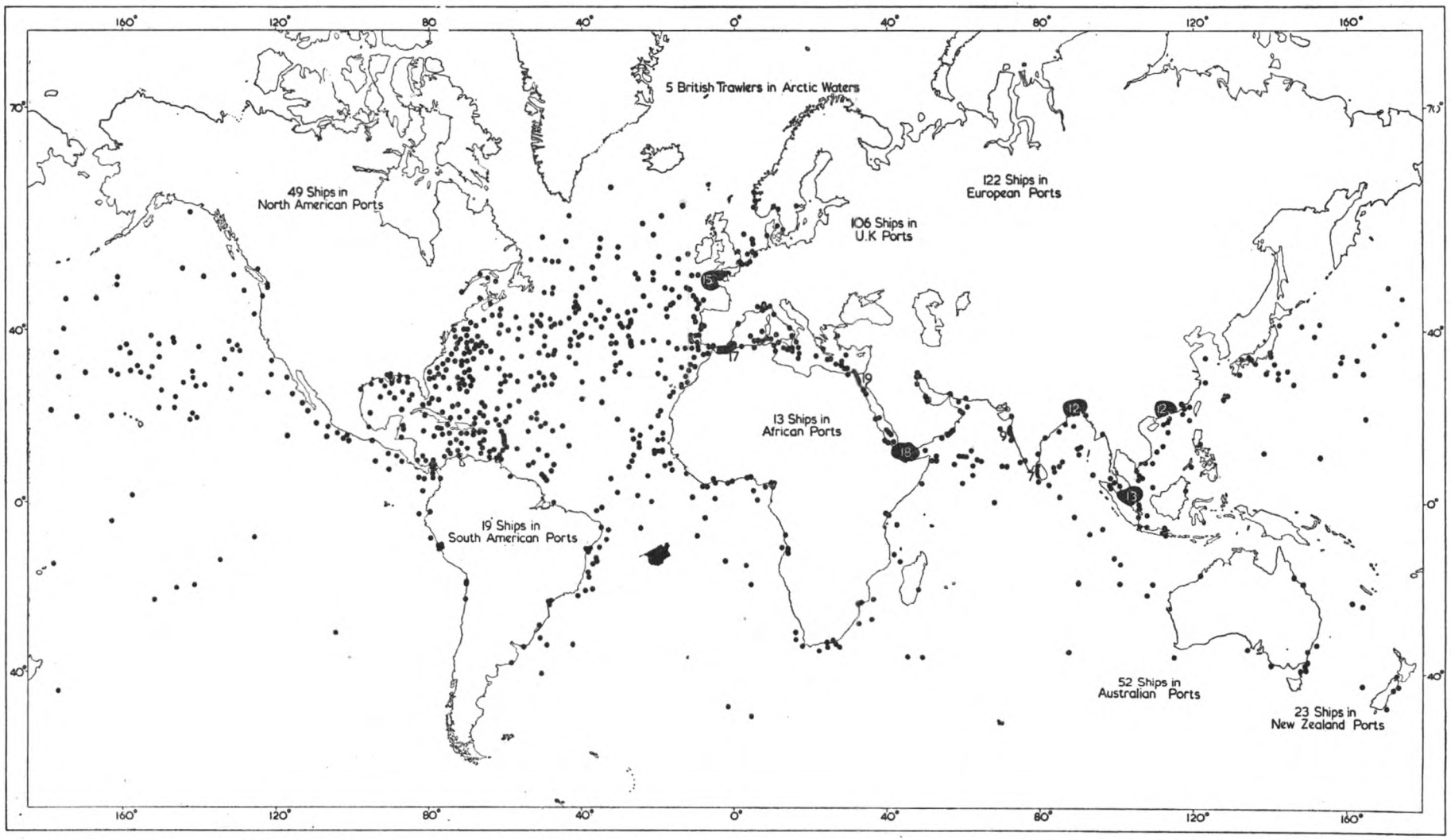
Map 2: showing the reports actually received by radio from all known selected ships on a given day.

Map 3: a composite map which was compiled from information largely supplied by Lloyd's and the General Post Office, associated with some of the information taken from maps 1 and 2, illustrating the relative density of shipping in the various oceans.

These three maps are reproduced here.

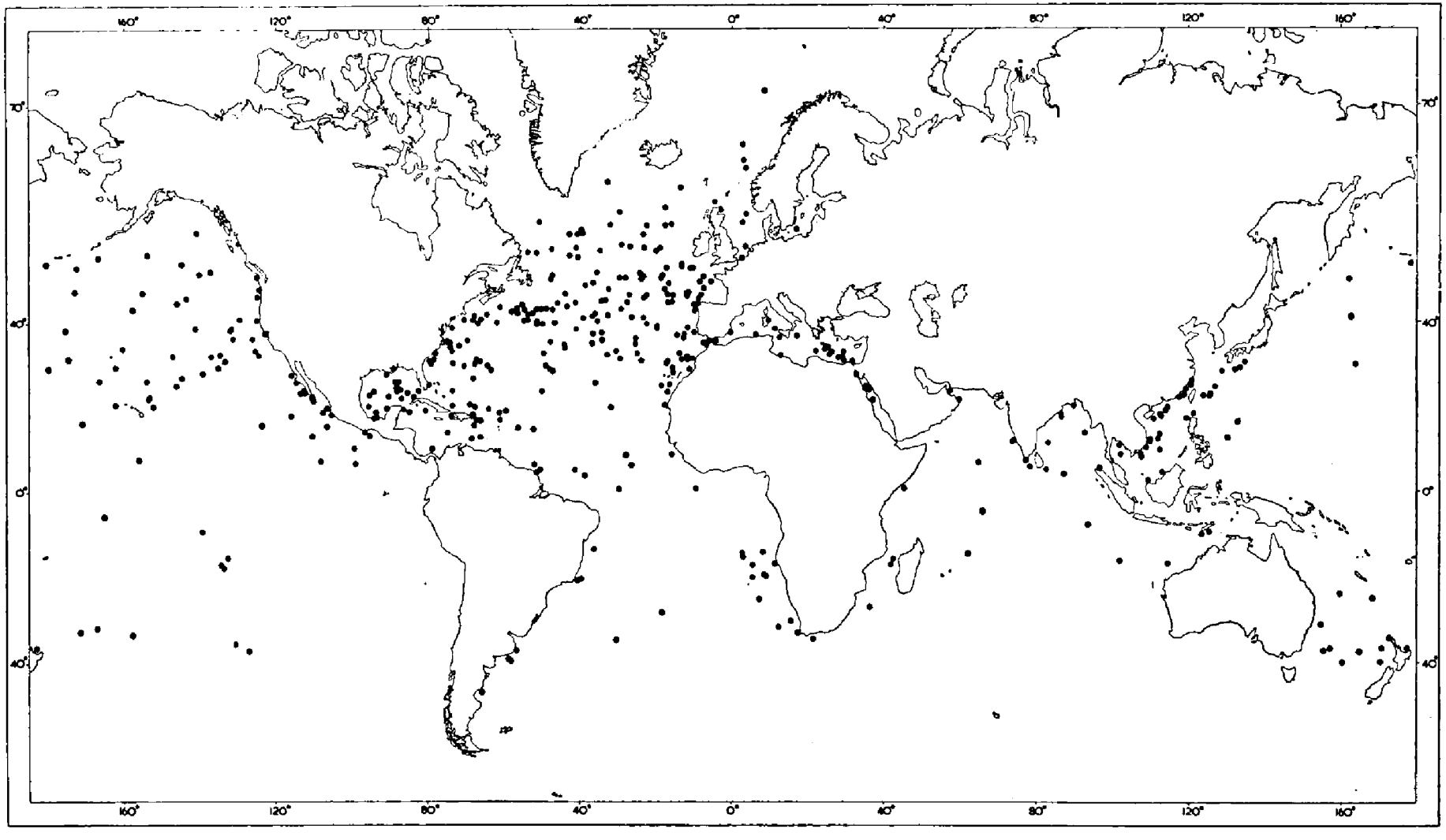
A study of these maps shows clearly that there are certain areas where the network of observations from shipping is quite good. The North Atlantic is in an outstandingly good position because not only is there a considerable movement of shipping always in this ocean, but there are also the 10 ocean weather stations.

Map 3 emphasises the enormous gaps in the synoptic network of the oceans which are inevitable and which are closely related to world trade. It will be seen that the greatest gaps occur in the southern hemisphere, where the proportion of sea to land is immensely greater than in the northern hemisphere. The South Indian Ocean is perhaps the best off; for example, the trade routes between Australia and the Cape pass fairly well south, and there is regular trade on that route. The regular run of shipping between the Gulf of Aden and Australian ports also helps to fill in along the gaps in this ocean. In the South Atlantic Ocean the tendency is



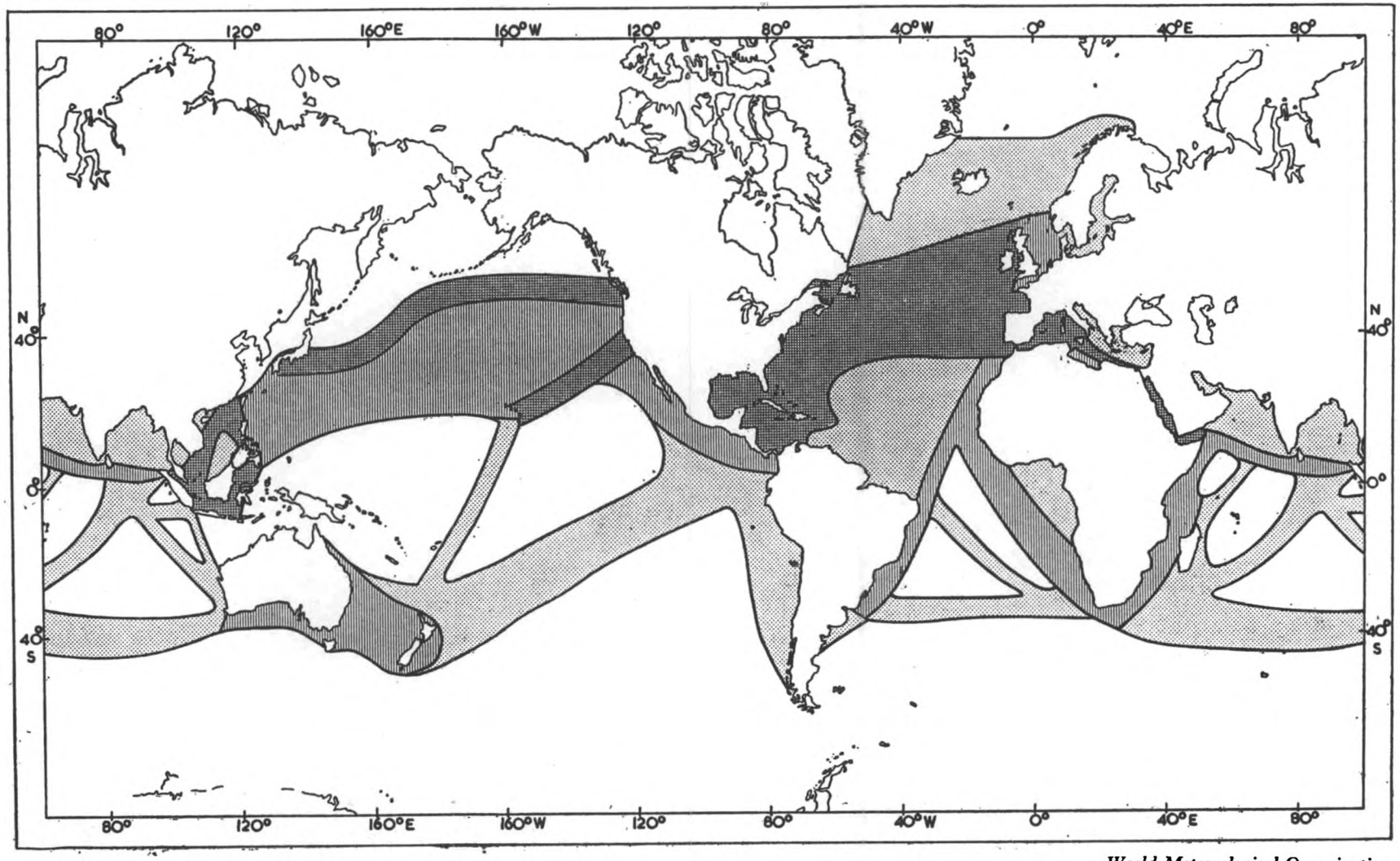
World Meteorological Organization

Map 1. Distribution of observing ships of all nations on 30th November, 1950.



World Meteorological Organization

Map 2. Positions of ships from which radio weather messages were received on 1st October, 1951.



Sea areas in which the number of reporting ships is at present satisfactory.

Sea areas in which the number of reporting ships is less satisfactory than in (*a*) and in which further improvement is desirable and may be possible.

Sea areas in which the number of reporting ships is quite inadequate, despite relatively frequent ocean traffic.

Sea areas which are relatively rarely traversed by ocean ships, and in which it is desirable to recruit as observing ships all available ocean-going vessels, even those undertaking only a single voyage in the area.

This map is based entirely on the normal geographical distribution on reporting ships, and takes no account of communication difficulties which may prevent reports from reaching collection centres.

Map 3. Relative density of shipping over the world, compiled from information supplied by Lloyd's and the G.P.O. and from maps 1 and 2.

for shipping to hug the South American and African coast, so there is an enormous gap in the middle of that ocean. It is fortunate that Tristan da Cunha is so situated as to help fill in the gap. In the South Pacific Ocean again we have an enormous gap between South America and New Zealand where shipping is necessarily very sparse. Fortunately, as a result of a scheme whereby their positions are transmitted in cipher, the co-operation of whaling ships during the whaling season has been secured and thus we have to some extent been able to fill in some of the great gaps in the Southern Ocean during that season.

From figures placed before the Commission it was shown that, at the time of the Conference, the voluntary observing ships of the world were built up as follows: Argentina 90, Australia 25, Belgium 12, Canada 36, Denmark 14, Egypt 11, France 169, Great Britain 631, Greece 4, Hong Kong 53, India 90, Ireland 3, Italy 36, Netherlands 178, New Zealand 28, Norway 16, Philippines 19, Portugal 74, South Africa 20, U.S.A. 876. Total 2,385.

The part that the British voluntary observing ships play in this scheme is evident from a study of the figures shown above. The British Meteorological Office is loyally endeavouring to carry out the desire of the W.M.O. to rationalise the network. A copy of map 3 above has been circulated to all Port Meteorological Officers and they have been asked to bear this map in mind when recruiting selected ships in an endeavour to fill in the gaps as much as possible.

Bearing in mind the information contained in the maps and table, the commission made several recommendations to rationalise and improve this network; these were later approved by the Executive Committee of the World Meteorological Organisation. Each maritime country has been specifically asked if it can recruit more ships, especially ships trading in those oceans where the number of reports is known to be inadequate. Meteorological Services responsible for the collection of ships' reports have been specifically asked to inform other countries if they are willing to receive reports from ships of other nations and to give an assurance that all such reports will be received free of cost to the ship. In areas where more than one country is responsible for the receipt of messages from ships, these countries are asked to co-operate in ensuring that an adequate number of reports from ships are received and promptly retransmitted for the benefit of the other countries concerned.

C. E. N. F.

ROUTES OF BRITISH OBSERVING SHIPS

The following is a summary of the distribution of British voluntary observing ships among the principal shipping routes of the world. The summary takes account only of the route on which a ship is most frequently engaged as far as can be ascertained.

Australia, always via Suez	9
Australia, via Suez, *or* Cape, *or* Panama	89
South Africa	28
Eastern North Pacific ports, via Panama	12
Far East, via Mediterranean and Suez	80
General European trading, mainly northern Europe	13
On Government service	12
Mediterranean ports only	1
North Atlantic ports on east coast of North America	68
Ports on North Pacific and South-East Pacific coasts	7

Persian Gulf	18
South America, Atlantic coast route	53
Antarctic whaling grounds	13
Based at Falkland Islands	1
West Indies	27
World-wide, no fixed route	117
	548

The relatively large number of ships trading to Australia, South America, the Far East and " world wide " compared with the number on the North Atlantic run, is accounted for by the fact that the Meteorological Office always endeavours to recruit ships that travel to the less frequented portions of the globe.

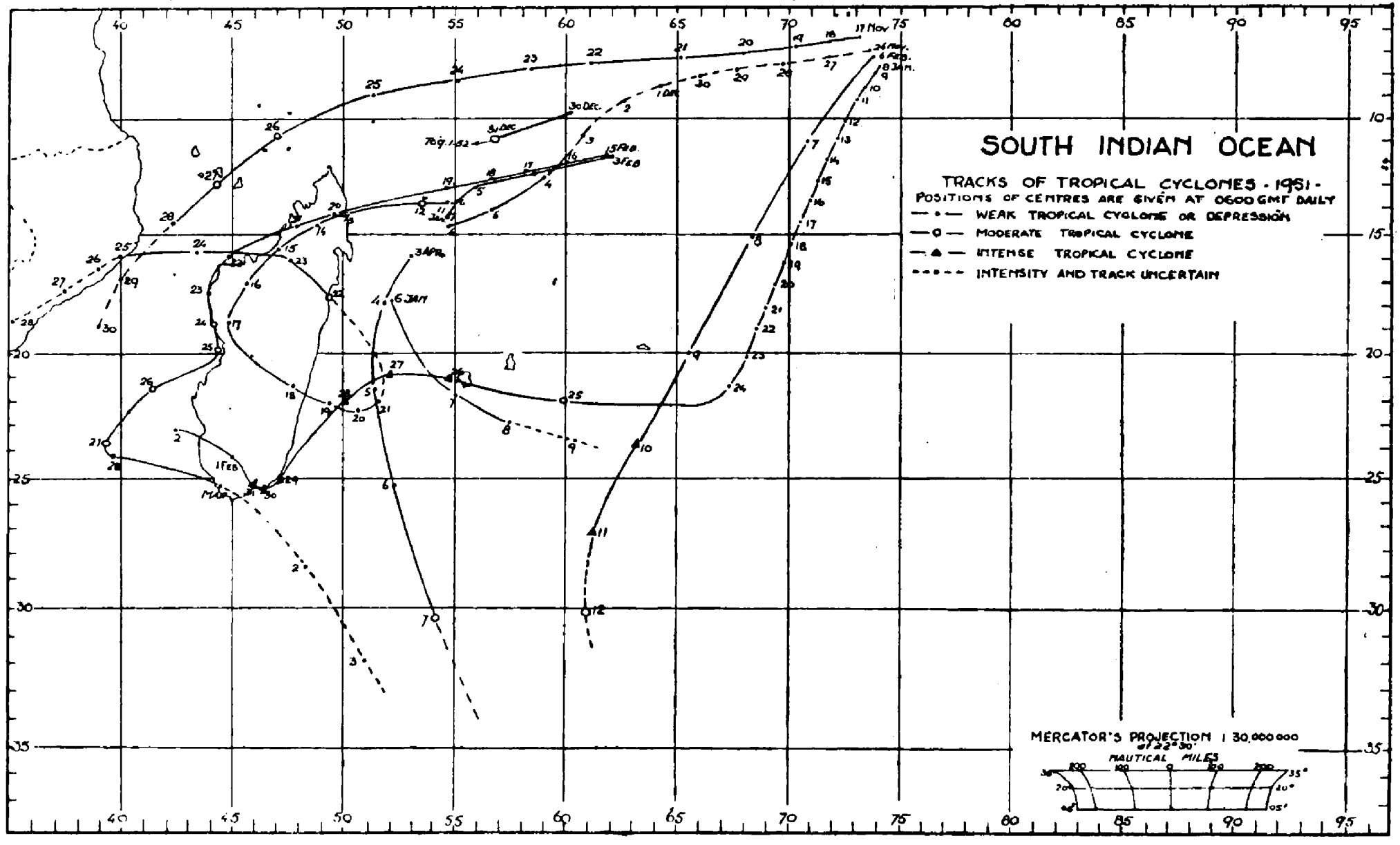
Reports from Hong Kong and Mauritius Observatories

The following are extracts from the Annual Reports of the Director of the Royal Observatory, Hong Kong, and the Director of the Observatory Department of Mauritius, for the year 1951:

Observatory Department, Mauritius

TROPICAL CYCLONES AND CYCLONIC DEPRESSIONS. There were 10 tropical cyclones or cyclonic depressions in 1951 of which seven were in the 1950–51 cyclone season and three in the 1951–52 season. Three never developed beyond the stage of tropical depressions, five developed into moderate cyclones and two reached considerable intensity at some time in their existence. This number of cyclones in a year is about normal, but the average intensity was somewhat lower than normal. Plantations and buildings were damaged in Agalega to a relatively small extent in December but no other cyclone considerably affected Mauritius and the dependencies throughout the year.

A small chart showing the tracks of these cyclones is shown on the opposite page. It has been thought useful to indicate by the simple symbolic method shown the known or estimated intensity of each cyclone in each day of its history. Those readers who have not studied the more modern literature on tropical cyclones may notice with surprise that the tracks of cyclones shown on the diagram are in general less simple than those published by the Observatory Department up to the last World War. The increased complexity has been necessitated by our greater present-day knowledge of the behaviour of cyclones and permitted by the increased amount of basic observations of the elements which are obtained from new land stations, ships and aircraft. Whilst there are still many gaps to fill in the scientist's knowledge of the structure and behaviour of these devastating storms it has been shown, chiefly in America, that on the average two cyclones out of every three do not follow the simple parabolic curve so consistently drawn not many years ago. In the south-west Indian Ocean " abnormal tracks " have been occasionally described in detail where there was sufficient indisputable evidence to show that a classical track could not fit the facts. " Inverted curves " and tracks on which tropical cyclones moved to a position nearer the Equator were usually mentioned as abnormalities. There is now real reason to believe that the cyclones in this region follow quite frequently the straight tracks, the tracks into lower latitudes,


SOUTH INDIAN OCEAN
TRACKS OF TROPICAL CYCLONES - 1951 -
POSITIONS OF CENTRES ARE GIVEN AT 0600 GMT DAILY
WEAK TROPICAL CYCLONE OR DEPRESSION
MODERATE TROPICAL CYCLONE
INTENSE TROPICAL CYCLONE
INTENSITY AND TRACK UNCERTAIN
MERCATOR'S PROJECTION 1 30,000,000
AT 22°30'
NAUTICAL MILES
40
45
50
55
60
65
70
75
80
85
90
95
10
15
20
25
30
35

the inverted curves, the sudden changes of direction and even the looped tracks which have been demonstrated in the Caribbean area, where the additional modern tracking aids such as storms, reconnaissance aircraft and radar equipment have been made available.

WEATHER SERVICES. Throughout the year observations from Mauritius, Rodrigues, Agalega, St. Brandon and Diego Gracia were broadcast for the use of shipping and these collective messages were supplemented by the re-issue of a selection of the reports received from ships. Normally there are two such broadcasts daily, but during cyclonic weather in this region the number is increased to six. In addition, throughout the cyclone season two messages for ships were issued daily outlining the weather situation and including all information about cyclones. Supplementary messages of this nature were also issued whenever necessary.

Apart from these broadcast messages, individual requests from ships were dealt with as received and a 24-hour service was maintained in order to reply to such requests without delay.

Co-operation from most ships was good, between 300 and 400 wireless weather reports being received from them each month. This information was later supplemented by the copying of the weather logs of ships coming into Port Louis harbour.

OTHER SERVICES. Daily weather reports from Mauritius and the dependencies and from ships in this region were sent by air mail to the U.S. Weather Bureau to assist in their most interesting project of preparing daily synoptic charts of the southern hemisphere.

Royal Observatory, Hong Kong

LIAISON WITH MERCHANT SHIPPING. A total of 19,450 weather reports was received from ships at sea during 1951. The decrease is attributed to reduced shipping traffic between Hong Kong and the United States and to the continued need of maintaining wireless silence in some areas.

Co-operation of ships during typhoon situations was most satisfactory, the record for the greatest number of reports in a single day being successively broken on 31st July with 133 and on 20th September with 134.

One hundred and two ships were visited in port by the Marine Liaison Officer of the Observatory; 45 ships' officers visited the Observatory, and 77 ships' barometers were checked.

Royal Observatory notices on the marine forecasting and storm warning service, calendars showing the typhoon signal code and relevant instructional circulars were given wide distribution.

HONG KONG VOLUNTARY OBSERVING SHIPS. 12,654 reports were received by radio from these ships during the year. Weather observations made and logged total considerably more than this and represent a valuable contribution to research data. On 31st March, 1952, the voluntary observing fleet comprised:

22 selected ships
25 supplementary observing ships
9 other voluntary observing ships.

During the year, 19,450 reports were received, of which 1,524 were from H.M. ships, 12,719 from British merchant ships and 5,207 from merchant ships of other nationalities.

AURORA BOREALIS

By JAMES PATON, M.A., B.SC., F.R.S.E.

(Mr. Paton is senior lecturer in the Department of Natural Philosophy of Edinburgh University and Director of the Aurora and Zodiacal Light Section of the British Astronomical Association)

To seafaring men, in particular those who ply the North Atlantic, the aurora borealis or northern lights is a not unfamiliar sight. They know it best as the dawn-like glow (aurora borealis means literally " northern dawn ") that often lies along the northern horizon. But once in a while they will have seen the glow burst into life to fill the sky with flaming, flickering light. The Merry Dancers, as the Shetlanders so aptly call aurora, are out. There is no more lovely and awe-inspiring spectacle than a sky that pulses with the pageantry of colour and movement that is a great aurora. And there is no better place to observe it than at sea, far from the smoke and artificial lighting of towns. Little wonder that when it moves southward, as occasionally it does, into Mediterranean skies, startled observers, terrified and awe-struck by this unfamiliar phenomenon of the heavens, have taken it to be an omen presaging evil happenings and have swarmed into the churches to offer prayers for deliverance. But it holds no terrors for the people of northern countries, Northern Scandinavia and Northern Canada, where it is seen on almost every clear dark night.

The regions where aurora is seen

The map, Fig. 1, shows the geographical distribution of aurora in the northern hemisphere. It is seen most frequently along a circular zone stretching from

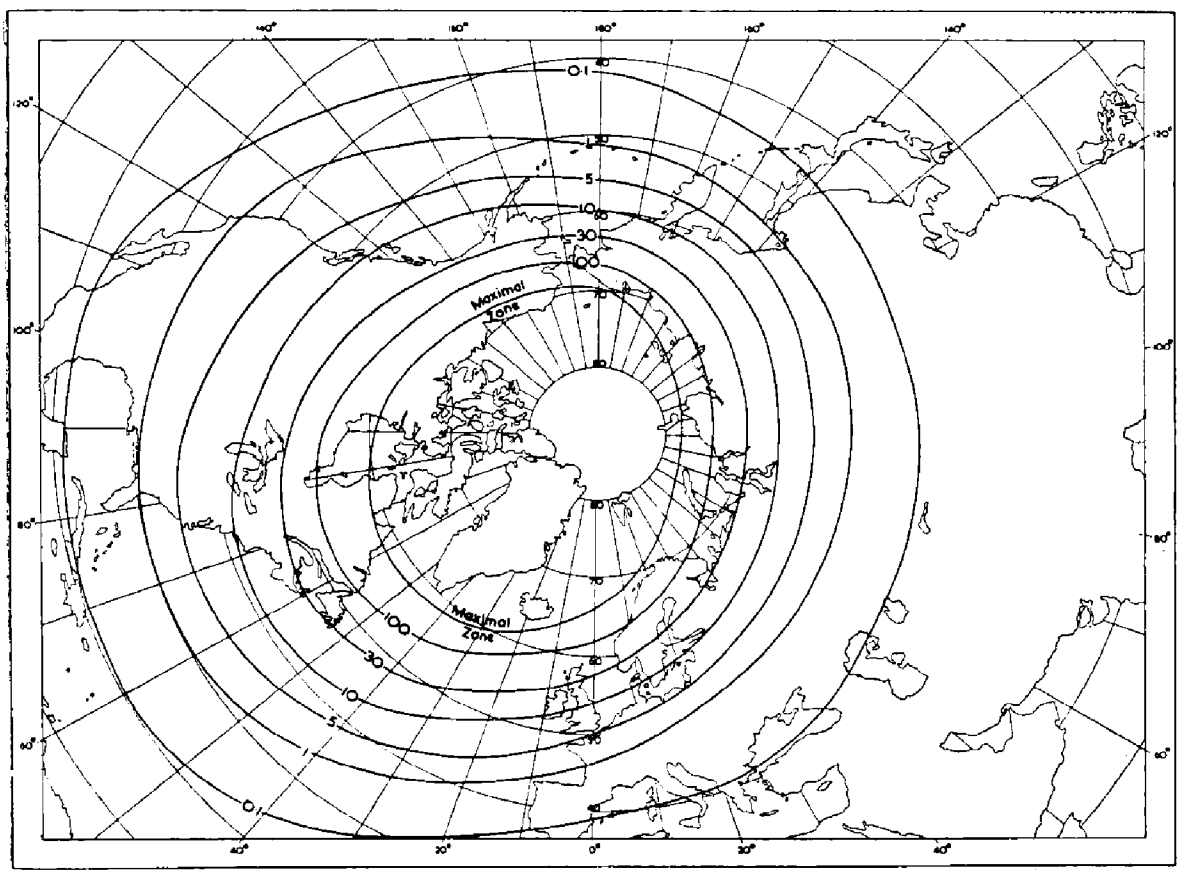


Fig. 1
Lines of equal auroral frequency (nights observed per year) in the northern hemisphere after Fritz.

North Cape to just south of Iceland and Greenland and passing across Northern Canada to skirt the north coast of the land mass of Eurasia. According to this map, aurora is seen on the route Southampton–New York about 10 times per year

and on the Clyde–St. Lawrence passage about 30 times per year. We have reason to suspect that it is observed much more frequently than this; this chart was prepared by Fritz as long ago as 1881, using the rather inadequate data then available, and so now requires revision.* A survey of aurora occurrences is now being made, partly with the purpose of revising the Fritz chart and also with the aim of assembling information, as complete as possible, of its occurrence in place and time, and of the auroral forms present on each night. Detailed information of this kind will enable a more thorough study of the phenomenon to be made than has been possible with more limited data. Such information can be obtained only by organising a widespread network of observers working to a prearranged plan, for the presence and types of aurora can be reliably determined only by visual observations; there is as yet no instrument that will automatically record it. Already over 100 voluntary observers from Iceland to the Channel Isles make nightly observations. In addition, crews of night-flying aircraft of the R.A.F., B.O.A.C. and B.E.A. keep watch for aurora and make nightly records of its absence or presence in the sky. The great advantage of aircraft observations is that they are less frequently interrupted by cloud. The purpose of this article is to enlist the aid of ships' officers in the Aurora Survey. The nightly observations need take only a few minutes; they are entered on a form, specially designed for ships' observers and containing full instructions.

The following account of the present state of our knowledge of aurora will show how important is the information that may be obtained from a successful survey in furthering the study of the subject.

The relation of aurora with the earth's magnetic field

Examination of Fig. 1 will show that the circular zones along which aurora is seen equally frequently are centred, not on the geographical pole like lines of latitude, but on the magnetic pole. There is a similar distribution in the southern hemisphere centred round the south magnetic pole†; aurora thus occurs most frequently along two zones 23° from the north and south magnetic poles, and so is related in some way to the earth's magnetic field. The connection is intimate; during a great aurora, sensitive instruments recording the earth's field show rapid fluctuations. This is the so-called magnetic storm, during which the variation,‡ for example, may change by as much as 2°. Calculations suggest that these perturbations in the earth's field are caused by electric currents of the order of 1,000,000 amperes circulating in the atmosphere about 60 miles up. While these huge, fluctuating currents flow in the atmosphere, their associated magnetic field is superimposed on the earth's regular field to produce the perturbations recorded by the magnetometers, i.e. the magnetic storm. What causes these electric currents?

The influence of the sun

Observed through a telescope, the surface of the sun is usually seen to contain one or more dark spots; if observations are continued for some days, the spots will be seen to move across the disc from E to W and finally to disappear at the W limb,

*It has been revised in a paper by E. H. Vestine, " The Geographic Incidence of Aurora and Magnetic Disturbance, Northern Hemisphere ", published in *Terrestrial Magnetism and Atmospheric Electricity*, June, 1944, but the new observations included were almost entirely from land stations. Professor Chapman of Oxford University, who has made very important contributions to the theory of aurora, has pointed out that a much more significant diagram would be one containing lines at all points along which there is the same frequency of nights of auroral occurrence *above* the point, i.e. overhead. Such a diagram can be reliably constructed only by means of the observations of an organised Aurora Survey and would be of very great value to the auroral theorist.

†The Southern Hemisphere aurora, called Aurora Australis, occurs in a sparsely populated area and far from normal sea routes so that the distribution is less well known than that of Aurora Borealis. But systematic observations are now being made under the auspices of the Antarctic Division of the Department of External Affairs, Melbourne, at Macquarie Island and Heard Island and by observers in New Zealand.

‡The angle which the compass needle makes with the geographical meridian, known as the variation to seamen, is called the declination by scientists.

perhaps to reappear again at the E limb some 13 days later. The sun therefore appears to rotate and to take about 27 days to make a complete rotation. Now aurora and magnetic storms tend to recur at intervals of 27 days. For example, observations made by members of the Aurora Survey showed that aurora has appeared at regular intervals of 27 days since 29th January, 1952. Indeed the writing of this article was interrupted on 4th April, 1953, in order to photograph an aurora in this sequence (Fig. 5).

Long-period records of the area of the sun occupied by spots reveal that there is a fairly well-defined rhythmic rise and fall in sun-spot activity, the period between two maxima (or minima) being about 11 years. The last sun-spot maximum occurred in 1947 so that we are now in a minimum sun-spot phase; the next maximum will occur about 1958. Now both aurora and magnetic activity follow the same 11-year rhythm, so we conclude that each is related to sun-spots.

But quite the most striking confirmation of the solar association is this: when an active sun-spot area is observed, using a specially designed instrument, an enormous tongue of flame may sometimes be seen to spurt from the sun's surface and to last for perhaps half an hour. Two sets of events follow this eruption, or flare, as it is called. First, about eight minutes after the start of the solar flare, a radio fade-out occurs over the sunlit hemisphere of the earth and continues as long as the flare lasts. Now light takes about eight minutes to travel from the sun to the earth so there can be little doubt about what causes the fade-out. A burst of ultra-violet light emitted at the flare causes such enormous ionisation (electrification) in the layers of the atmosphere which normally reflect radio waves (the ionosphere) that the radio waves are now completely absorbed and long distance radio communication becomes impossible across the sunlit hemisphere. The second sequel to the flare occurs about 30 hours later. The magnetometers at observatories begin suddenly to record the rapid changes in the magnetic field that mark the onset of a magnetic storm and the aurora lights up the sky. The delay in the occurrence of these events is explained on the assumption that they are caused by a stream of particles sprayed out from the flare. The particles travel much more slowly than the light that caused the fade-out, taking some 30 hours to do the journey that the light covered in eight minutes. Their speed is therefore a mere 40,000 miles per minute. They signal their entry into the high atmosphere by colliding with the air molecules and stimulating them to give out light—the light of the aurora—in much the same way as neon gas is excited to luminosity in discharge-tube advertisement signs. The symmetrical distribution of aurora round the magnetic poles is explained on the assumption that the particles are electrically charged and so are directed into the auroral zones by the earth's magnetic field. They give rise to the immense electric currents in the high atmosphere which we have seen are responsible for the magnetic storm.

We must assume that the corpuscular stream that issues from the sun consists of roughly equal numbers of positively and negatively charged particles, for if it is composed of particles all carrying the same sign of charge, then electrostatic repulsions would dissipate it long before it reached the earth. So far, hydrogen (protons) and calcium have been identified as constituents of the stream.

While great aurorae can usually be related to the occurrence of a flare or to an active sun-spot, displays apparently unrelated to any observable solar disturbance may occur. This is most noticeable at sun-spot minima; the present long 27-day recurrence sequence mentioned earlier is an example. In explanation, it has been suggested that there are regions of the sun, called M-regions, which continue to spray out a stream of particles into space for long periods. The spray may be pictured as issuing from the solar M-region like water from a hose, so that as the M-region rotates with the sun, its stream of particles will sweep across the earth every 27 days to produce regularly recurring magnetic disturbances and aurorae.

So the relations of aurora with sun-spots and flares and with magnetic storms and ionospheric changes are well known in general terms. The necessarily short account of theory given here may have given the impression that the cause and characteristics of aurora are well understood. This is by no means the case. Not every researcher in this field accepts the corpuscular theory; some believe that the responsible solar agent is ultra-violet light and even the various corpuscular theories may have little in common but the name. And besides the fundamental theory, there is a multitude of specialised problems requiring investigation. Some of these will be indicated in the next paragraphs.

Auroral forms

The course of an auroral display is quite unpredictable, but a great aurora often follows a fairly well-defined sequence. It begins as a GLOW on the horizon which eventually ascends to form a quiet ARC, extending approximately in an E–W direction in the form of a bow. To the eye, the aurora usually appears grey-white; the true colour is probably green, but since the light intensity of most aurorae is below the threshold of colour perception, colour is not detected by the eye until the display brightens. The arc may remain quiescent for some hours. Suddenly it may brighten here and there along its length and become more sharply defined at its lower border, while RAYS begin to shoot upwards. It then loses its regular bow shape and may assume the form of DRAPERIES, waving like a curtain in a breeze. If the rays extend beyond the zenith, they will appear to converge to a point and to form a crown or CORONA. It will be found that the south pole of a *freely suspended* magnetic dip needle (compass needles are weighted to lie horizontally) will point in the direction of the radiation point of the corona. This is the direction of the lines of magnetic force—about 20° south of the zenith in England. It is what would be expected on a corpuscular theory, for incoming charged particles would be directed down the lines of magnetic force. Auroral rays then are parallel; they appear to converge by perspective, i.e. just as railway lines appear to meet in the distance. So all overhead rays appear to diverge from a point, the centre of the corona. When the display is at its height, usually two hours before local midnight, the total illumination may exceed that of full moon, and it is then that it is likely to reach its most southerly limit. When it begins to die down and to recede northward, FLAMING may set in; waves of light billow upwards in rapid succession towards the zenith. After a quiet period during which only a glow and perhaps intermittent weak flaming persist, the whole sequence may be repeated.

There is no satisfactory explanation of these various forms assumed by aurora nor does there appear to be any well-marked relationship between the different auroral forms and the pattern of the magnetic perturbations recorded simultaneously by magnetometers, though this will be further investigated using the survey observations.

The height of auroral luminescence

The method of determining the height and position of aurora is due to Professor Carl Störmer of Oslo, who has long studied the phenomenon and has made important contributions to both the theoretical and observational aspects of the subject. Simultaneous photographs of the same portions of the aurora are taken using specially designed cameras at two or more widely separated stations. The star background on the plates serves to provide a measuring scale, for if the time of the photographs is known, the position in space of the stars may be found from the Nautical Almanac. A lengthy and somewhat tedious calculation leads to the determination of the height and position of the particular auroral feature photographed.

There are at present photographic stations at Abernethy (A) and Blairgowrie (B) in Perthshire and Rosneath (C) in Dumbartonshire. The shortest base line, AB, is 17 miles long and the longest, BC, over 100 miles. In 1957 at sun-spot maximum, when displays extend far southward, photographic stations will be established in the south of England.

It is found that aurora seldom appears much below a height of 60 miles; it may appear *outside the earth's shadow in sunlight* at heights as great as 600 miles.

Can aurora be heard ?

Many observers claim to have observed very low aurora, so near the earth as to be seen against a background of hills. The physical conditions of the atmosphere necessary for the emission of light cannot exist at the high air pressure near the earth's surface, so such apparently low aurorae must be illusions, perhaps caused by the reflection of auroral light by mist. Many claim also to have heard sounds accompanying aurora, describing them as " swishing ", " hissing " and " rustling ". In view of the great height at which aurora is situated, no sound could possibly be audible at the earth's surface; while witnessing a brilliant display of waving curtains and darting rays, one feels that surely some sound must accompany each burst of activity and it is only too easy to associate with the display locally occurring sounds like the rustling of leaves or the sough of the wind. It has also been suggested that the illusion may derive in thundery weather from the sound of the electrical brush discharge of St. Elmo's fire, a quite unrelated phenomenon, or, in very cold regions, from the hiss of ice crystals forming in the breath of the observer. There is yet another possible explanation. The great surging electric current systems in the high atmosphere that accompany aurora and cause the perturbations in the earth's magnetic field, induce considerable voltages along telegraph and telephone lines. The resulting so-called earth currents often blow fuses in telephone circuits and cause " air on the line " sounds in telephones. This may explain some of the claims of observers to have heard aurora.

The auroral spectrum

Since the light of the aurora is emitted by the atmospheric gases, information concerning the composition of the atmosphere at auroral levels may be obtained by examination of the auroral spectrum. Such investigation reveals that molecular nitrogen persists in the atmosphere even to the highest auroral levels (600 miles) but that oxygen exists in the atomic state at heights above 60 miles. A predominant feature of the spectrum is a green line due to atomic oxygen.

The existence of aurora at the great height of over 600 miles indicates that the concentration of atmospheric gases is still appreciable there and allows a rough estimate of temperature to be made. The estimate of at least 1500° absolute (2241°F) is confirmed by measurements made by other methods.

So, aurora provides a valuable means of exploring the upper atmosphere.

The aurora survey: an appeal for observers

As has already been mentioned, a survey of aurora occurrences is being made during the next solar cycle, i.e. until about 1964, and voluntary observers on land and aircrews in night-flying aircraft are already making nightly observations. It is now hoped to enlist the aid of observers in ships in British waters and on passages to the United States and Canada. A form for entering observations, containing full instructions, has been prepared. Observers are asked to note whether or not aurora is present or if cloud, etc., make observations impossible at the time they observe. While the observations need take no more than a few minutes each night, it is hoped that, when aurora is present and the observer can spare the time, descriptive notes of the development of the display will also be made.

Ship's observations will be all the more important in view of the fact that it has been arranged that the year 1957-58 will be an International Geophysical Year, during which all nations will join in undertaking a concerted investigation of various geophysical phenomena including aurora. The Aurora Survey will form part of the British contribution to the geophysical year.

I shall be glad to answer enquiries, and observers are invited to visit the laboratory, the University, Natural Philosophy Department, Drummond Street, Edinburgh, to see the use to which their observations are put.

Editorial note. It is hoped that observers in selected and supplementary ships will co-operate voluntarily in providing information which will help to make this survey more comprehensive. The value of the survey will be greatly increased by having as large a number of observers as possible over the area specified.

The minimum requirements in filling up the form are entries for each night, whether cloudy or not, giving the date, whether aurora is seen or not and the time of the observation. Any additional information describing the auroral phenomena seen, by those who have the time to do so will, as Mr. Paton says, be welcomed.

It is recognised that meteorological observations are not usually made by selected or supplementary ships when in soundings. It may not therefore be possible to make auroral observations during this period, but if the minimum entries can be filled in, these will be of additional value. Auroral observations cannot, of course, be made in port owing to the glare of artificial light, unless the aurora is particularly brilliant.

Forms, each of which contains space for one month's observations, may be obtained from the various Port Meteorological Officers and Agents. The forms should be enclosed with the meteorological logbooks when these are returned to the Marine Branch.

It should be pointed out that the auroral observations entered on these special forms are for a special purpose, and also only cover the area from Iceland and the British Isles to the Atlantic coast of North America. They will not be seen in the Marine Branch, and therefore do not take the place of the observations of aurora made within the above region or in any other part of the oceans in either hemisphere hitherto entered in the remarks column or the additional remarks section of the meteorological logbook. These, often accompanied by sketches, have provided interesting material for publication in the " Marine Observer's Log ". Such observations have undoubtedly added considerably to our knowledge of the distribution of aurora over the globe and it is hoped that they will be continued in the future.

Furthermore, Mr. Paton has stated that such observations, recorded in the meteorological logbook as hitherto for any part of the world, will be of value to him, apart from the observations made on the special forms for the survey area. We have therefore arranged to send him all observations of aurora recorded in the logbooks of voluntary observing ships in any part of the world since the war. In reply to our offer to do so, Mr. Paton wrote: " We are most grateful to you for your offer. . . . They will be of very great value to us and, no doubt, we shall have occasion to refer to them in future publications." Observations of aurora, recorded in the logbooks in future, will therefore not only be published in *The Marine Observer*, but will also be collected and sent to Mr. Paton from time to time.

Ocean Swell and Microseisms

At the Royal Astronomical Society on 27th February, a geophysical discussion was held on the subject of Ocean Swell and Microseisms, under the chairmanship of Dr. Deacon, Director of the National Institute of Oceanography.

Professor Ewing of Columbia University, New York, described some interesting work which has been done on the subject of microseisms in the United States. This work has shown that microseismic disturbances are shown on the seismograph not only when intense low-pressure systems are experienced but also are created at the passage of a cold front. Microseisms due to deep depressions have a period of about 6–8 sec whereas those due to the passage of a front are distinguished by having a period of only about 3 sec. Regular observations have been studied in conjunction with weather maps and have shown that most disturbances off the east coast of the American continent are shown up on seismographs in this way.

Dr. Longuet-Higgins described his mathematical theory and gave a lot of illustrations to show that microseisms due to meteorological causes are largely due to " standing waves ". Thus, at the centre of a deep depression the " pyramidal " sea due to the sudden change in wind direction, caused intense microseismic disturbances, and this would be even more pronounced in the centre of a tropical hurricane. He also showed that waves reflected from a coast could also cause microseisms. He illustrated his theory with the aid of weather maps.

Mr. J. Darbyshire then showed from the work he had done with the Admiralty wave recorders at Perranporth that comparison of the wave profiles resulting from certain storms when compared with seismographs showed a distinct relationship

(contd. on p. 188)

Opposite page 164

Fig. 2. Eastern end of a rayed arc, 17th March, 1949.

Fig. 3. Top of a rayed arc, 8th March, 1953.

Opposite page 165

Fig. 4. Auroral corona, 25th January, 1949.

Fig. 5. Western end of arc, 3rd April, 1953.

FLEET LIST (Great Britain)

VOLUNTARY OBSERVING SHIPS

The following is a list of British ships voluntarily co-operating with the Marine Branch of the Meteorological Office.

The names of the Captains, Observing Officers and Senior Radio Officers are given as ascertained from the last written returns received. The date of receipt of the last return received is given in the third column.

All returns received from observing ships will be acknowledged, direct to the ship, by the Marine Superintendent.

The Port Meteorological Officers and Merchant Navy Agents at the ports will make personal calls on the Captains and Observing Officers as opportunity offers, or on notification from the ship at any time when their services are desired.

Excellent awards are made at the end of each financial year. The names of the Captains, Principal Observing Officers and Senior Radio Officers gaining these awards are published in a special list in *The Marine Observer*.

It is requested that prior notification of changes of service, probable periods of lay-up, transfer of Captain, or other circumstances which may prevent the continuance of voluntary meteorological service at sea, may be made to the appropriate Port Meteorological Officer or Merchant Navy Agent.

Captains are requested to point out any errors or omissions which may occur in the list.

Selected Ships

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Accra	GJSW	13.12.52	A. G. Baptiste	W. F. Craig, J. O. Jones, F. R. Penrice	J. Stuart	Elder Dempster Lines, Ltd.
Afghanistan	GNYB	6.12.52	R. Connacher	J. Arthur, R. Pearson, —. Thompson	E. M. Petrie	F. C. Strick & Co., Ltd.
Ajana	GKVY	26.2.53	F. W. Mould	R. Brewster, I. S. McLean, J. Walters	A. Mulcahy	Trinder Anderson & Co.
Ajax	GJXM	11.4.53	E. W. Studley	A. W. Spivey, C. F. Ash, J. G. Wood, P. Herdman	S. Ramsbottom	A. Holt & Co.
Akaroa	GMLP	16.12.52	J. W. Hart	G. H. Lowis, J. Bakewell	J. Reynolds	Shaw, Savill & Albion Co., Ltd.
Albistan	MABT		M. M. Goldie	A. J. Seymore, R. J. Kane, E. S. Hewett	W. Hawkins	Frank C. Strick & Co., Ltd.
Alcantara	GLQR	27.3.53	H. D. Hooper, O.B.E.	P. J. Shephard, D. Wolstenhome, R. Bland	R. Hammond	Royal Mail Lines, Ltd.
Alsatia	MABL	1.12.52	J. G. Bradley, R.D., R.N.R.	J. G. O'Sullivan, R. McClymont, J. B. Clemenson, D. Rostron	D. Grainger	Cunard Steamship Co., Ltd.
Amakura	MCPN	31.12.52	S. Armitage	K. Garrett, H. Meudell, J. H. Donaldson	I. R. Davies	Booker Bros., McConnell & Co., Ltd.
Andes	GQCV	11.6.52	G. A. Bannister	R. T. Dalgleish, S. Gibson, R. R. L. Williams, J. Bonner, R. Byles	W. Smith	Royal Mail Lines, Ltd.
Andria	GDWM	28.1.53	W. B. Tanner, R.D., R.N.R.	D. P. Johnstone, P. J. R. Lawley, H. Dormer, J. Cosnett	G. C. Reed	Cunard Steamship Co., Ltd.
Apapa	MACE	9.4.53	W. Munt	R. C. Abbatt, R. F. Norris, S. D. Owen	G. Gilling	Elder Dempster Lines, Ltd.
Arabia	GLKF	27.3.53	J. Chapman, R.D., R.N.R.	J. R. Turner, E. D. Hall, H. Parry-Williams	T. Sandham	Cunard Steamship Co., Ltd.
Arabistan	GCKK	10.3.53	J. E. Cooke	P. H. Alexander, D. Calvert, U. Easby	W. J. Kenny	F. C. Strick & Co., Ltd.
Araby	GMZL	7.11.52	F. J. Swallow	J. Merson, —. Sykes, J. Chester	—. Whittaker	Royal Mail Lines, Ltd.
Arakaka	GDVN	20.1.53	J. A. Carter	J. L. Angecowsky, K. W. Leadbetter, W. Lane	J. Fraser	Booker Bros., McConnell & Co., Ltd.
Aravia	GSMN	13.12.52	W. G. West	K. Billinghurst, G. H. Lowis, J. Cousins, B. Irwin	P. W. Booth	Shaw, Savill & Albion Co., Ltd.
Argentina Star	GTKF	31.12.52	E. R. Pearce, O.B.E.	B. Boutwood, W. Sturrock, H. Maidment, —. Thompson	M. Sheahan	Blue Star Line, Ltd.

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Argyll	GBWB	15.11.52	J. Dodds	T. R. Rowe, B. Woolett, C. Younger	G. Richards	B. J. Sunderland & Co., Ltd.
Ariguani	GMBL	16.4.53	C. S. Gracie	F. J. Cubben, A. Thompson, G. Heywood	A. N. Taylor	Elders & Fyffes, Ltd.
Armadale	GMCR	13.4.53	J. MacLean	H. A. McGill, G. Giles, J. G. C. Campbell	E. W. Harle	Trinder, Anderson & Co.
Arundel Castle	GCZL	15.11.52	W. S. Byles, R.D., R.N.R.	C. Markham, I. McPherson, F. Booth	E. Pitt, D.S.C.	Union Castle Mail S.S. Co., Ltd.
Ascania	GKGN	9.4.53	F. G. Watts, R.D., R.N.R.	K. P. Wilkinson, M. J. C. Boyce, A. W. Hoyle	P. Milligan	Cunard Steamship Co., Ltd.
Ashburton	GNJN	16.4.53	C. Parry	A. Robinson, —. Pearson, J. M. Hunter	R. Brown	Trinder Anderson & Co.
Asia	GLJV	15.11.52	F. E. Patchett	—. Kendal, A. Bull, C. J. Burtinshaw, R. Allwater	—. Marshall	Cunard Steamship Co., Ltd.
Assyria	GGKX	27.3.53	A. G. Cuthill	D. A. Davies, J. Gornall, E. Hamer	B. A. Long	Cunard Steamship Co., Ltd.
Asturias	GLQS	21.4.53	B. C. Dodds, O.B.E.	J. Atkinson, N. W. Green. N. J. Smith, M. Mortimer	R. T. Farrell	Royal Mail Lines, Ltd.
Athelchief	GCRG	6.12.52	W. A. Meneight	D. W. Owen, S. Waldron, J. O'Sullivan	T. Cronin	Tankers, Ltd.
Athenic	GBLS	18.12.52	B. Forbes-Moffatt	T. S. Hayward, J. G. Beck, S. Smyth	R. Knight	Shaw, Savill & Albion Co., Ltd.
Athlone Castle	GYTK	16.3.53	C. C. Page	E. J. Harrison, J. Parker, J. Ashton	J. H. Summers	Union Castle Mail S.S. Co., Ltd.
Aureol	GMGJ	24.2.53	J. J. Smith, O.B.E.	G. A. Foxcroft, F. R. Penrice, G. Read	F. W. J. Bloomfield	Elder Dempster Lines, Ltd.
Auricula	GKPV	13.12.52	E. Robertson	J. D. Francis, M. L. de Lacroix, J. N. Thatcher	J. P. Connolly	Anglo-Saxon Petroleum Co., Ltd.
Australia Star	GYCS	11.4.53	R. White, D.S.C.	G. T. King, I. Mackintosh, J. Hutton, R. Middleton	N. H. Aldersley, M.B.E.	Blue Star Line, Ltd.
Australind	GJKF	14.11.52	J. Foster	H. Jones, J. Kerslake, R. Brown	C. D. Ogbourne	Trinder Anderson & Co.
Avistone	GBSV	14.4.53	C. K. Evans, O.B.E.	S. T. Burt, C. H. S. Logie, D. Maddison	L. R. Bradley	Purvis Shipping Co., Ltd.
Avondene	MAWG	2.3.53	F. Moorcraft	W. T. Williams, I. Daniel, E. T. Milford	C. Cowen	Dene Shipping Co., Ltd.
Balaena	GLDG		P. Virik	—. Christoffersen, —. Bentzen, A. Andersen		United Whalers, Ltd.
Balantia	GBNM	31.12.52	W. B. Tennent	A. Fletcher, M. Larrive, J. Thornell	B. Small	Royal Mail Lines, Ltd.
Baron Elphinstone	GCCD	23.7.52	A. Campbell	G. Harris, E. Jones, J. Rennie	P. McArthy	H. Hogarth & Sons
Baron Fairlie	GLCY	13.4.53	T. R. Reid	R. W. Forbes, J. Gordon, H. C. Hynard	P. E. Bowler	H. Hogarth & Sons
Baron Murray	GIFB	19.1.53	E. J. Brown	C. W. Noakes, W. Thompson, W. Anderson	R. Tew	H. Hogarth & Sons
Baron Renfrew	GYDR	23.1.53	G. D. Drysdale	P. Turnbull, E. Griffiths, I. MacKay	G. Alderton	H. Hogarth & Sons
Bassano	GNXK	11.12.52	F. Briggs, O.B.E.	B. Wright, F. Barnes, J. Cooper	W. Richardson	Ellerman's Wilson Line, Ltd.
Beaverburn	MAGB	5.12.52	J. Soame	M. H. Scott, A. H. R. Peace, M. J. Mayes, H. L. Kinns	A. E. S. Thompson	Canadian Pacific S.S., Ltd.
Beaverford	MQJG	21.4.53	W. J. P. Roberts	C. Hutchinson, —. Walgate, G. Palmer, R. Kennedy	T. Herriots	Canadian Pacific S.S., Ltd.
Beaverglen	GBCP	7.1.53	W. R. Thorburn	P. C. Lovell-Smith, J. Walker, R. Stewart	R. J. Cummings	Canadian Pacific S.S., Ltd.
Beaverlake	GBCQ	31.12.52	C. L. de H. Bell, D.S.C., R.D., R.N.R.	D. E. Rae, M. H. Scott, J. Waling, J. G. Morris	A. E. S. Thompson	Canadian Pacific S.S., Ltd.
Beaverlodge	MAGJ	25.3.53	D. Parsons	J. S. Brooks, A. H. R. Peace, J. Richardson	E. R. LeGear	Canadian Pacific S.S., Ltd.
Beckenham	GCGK	9.4.53	R. D. Griffiths, O.B.E.	J. Collister, D. A. Forrester, R. Murray	A. MacKay	Watts, Watts & Co., Ltd.
Bellerophon	GGCM	21.4.53	H. C. Large	P. R. Malarky, B. C. Pays, A. G. Bell	J. C. Wilson	Alfred Holt & Co., Ltd.
Benarty	GCZZ	7.3.53	T. Sutherland	M. J. Peyton-Bruhl, A. King, W. Scott, T. C. Brown	R. Dixon	W. Thomson & Co.
Bendoran	GCJN	11.8.52	A. Plenderleith	M. Mathie, W. D. Cowie, —. Edwards	J. Jenkins	W. Thomson & Co.
Bennevis	MAGG	20.11.52	R. L. Chalmers	A. McKenzie, A. Hall, I. Donaldson	F. G. Hayes	W. Thomson & Co.
Benvannoch	GCDZ	8.11.52	J. C. Allan	G. Reid, A. McLean, J. King	E. Carruthers	W. Thomson & Co.
Benwyvis	MYPW	10.2.53	R. L. Arkley	I. Welsh, E. A. McKinnon, D. W. Felming-Miller	D. Milne	W. Thomson & Co.

Biscoe	GDCW	21.4.53	D. J. McKinnon	C. G. Stiff, A. J. Foster, B. Mullan	J. Harrison	Hector Tankers, Ltd.
Bransfield	GDRK	19.5.52	M. Paulsen	A. G. Giblin	—. Salvesen	United Whalers, Ltd.
Brasil Star	GTLF	25.4.53	G. E. Barnard	M. J. Slessor, J. A. Nolan, P. J. Harris	P. Evans	Blue Star Line, Ltd.
Bravo	GLDZ	31.3.53	J. Mussared	G. W. Forward, J. Gabrielson, G. Byers	A. Newton	Ellerman's Wilson Line, Ltd.
Brisbane Star	GZCJ	26.1.53	S. Foulkes	—. Howarth, J. C. Harris, E. J. T. Boome, T. V. Anderson	M. Goodall	Blue Star Line, Ltd.
Bristol City	GUAY	11.4.53	A. L. Webb, O.B.E.	N. Childs, W. H. Stoodley, R. L. Whitman	A. V. Chappel	Charles Hill & Sons
Britannic	GDXF	17.12.52	J. W. Caunce, R.D., R.N.R.	M. H. Blackmon, T. Dodds, R. G. M. Hunt	J. Kidson	Cunard Steamship Co., Ltd.
British Colonel	GFDB	7.3.51	W. L. Pugh	D. J. Burgess, G. T. H. Skeuse, J. R. Lynn	E. C. Taylor	British Tanker Co., Ltd.
British Consul	GCXT	17.3.53	T. Copeman	T. Evans, J. A. N. Clark, A. Couper	W. Arscott	British Tanker Co., Ltd.
British Dragoon	MAGP	24.2.52	J. C. Lawrence	W. A. M. Hare, J. A. P. Farrett, J. E. Kemp	P. C. Byrne	British Tanker Co., Ltd.
British Endeavour	GFCN	16.2.53	J. R. Georgeson	G. Bodley, M. D. Perry, G. W. Reeve, A. W. Henderson	H. Thompson	British Tanker Co., Ltd.
British Endurance	MLZM	26.1.53	J. H. Thompson	E. K. Williams, E. Henderson, —. Morrison	J. K. Fenwick	British Tanker Co., Ltd.
British Escort	GCRB	28.1.53	L. V. Potts	K. Curtis, J. Brown, P. Wright	R. Read	British Tanker Co., Ltd.
British General	GCDJ	29.1.53	G. E. Hodgson	D. W. Evans, F. G. Ball, J. Taylor	A. Hunter	British Tanker Co., Ltd.
British Gratitude	MAGQ	10.3.53	R. L. Friendship	J. Baird, R. C. Donovan, F. Millington	P. R. Entwhistle	British Tanker Co., Ltd.
British Marquis	GWVL	1.4.53	C. W. Uridge	N. Rutherford, F. S. White, S. May	H. McColl	British Tanker Co., Ltd.
British Patience	GUFF	17.2.53	A. D. Millar	C. G. W. Tyler, W. H. Bruford, D. M. Burley	T. Tulloch	British Tanker Co., Ltd.
British Piper	GDNN	13.4.53	G. Calder	P. R. Newton, R. McInnes, M. C. A. Horn	G. C. Campleman	British Tanker Co., Ltd.
British Power	GZGG	17.3.53	D. R. Dockwrey	H. R. Carstairs, J. W. Strachan, I. McI. Ferrier	M. Strathern	British Tanker Co., Ltd.
British Resource	GFCD	9.4.53	B. N. Naylor	J. H. G. Tapscott, A. B. C. Browne, —. Easdon	P. Wragg	British Tanker Co., Ltd.
British Statesman	GJNR	6.10.52	A. H. Newby	N. Griffiths, J. Horner, R. Morrison	L. Stewart	British Tanker Co., Ltd.
British Swordfish	GCQV	15.10.52	H. A. Lawson	P. S. Lucas, G. Symons, P. B. Goudie	S. Caughie	British Tanker Co., Ltd.
Brittany	GMZS	16.4.52	G. M. Fletcher	R. Fanthorpe, M. Bennett, J. Postill	A. Attwood	Royal Mail Lines, Ltd.
Brockleymoor	GDWP	30.6.52	F. Bradfield	J. Clarke, A. H. Brown, K. Robson	C. Gamwell	Walter Runciman & Co., Ltd.
Byron	GNFL	21.2.53	J. Byrne, O.B.E.	J. F. Munden, M. F. M. Fair, C. Rowntree	T. Wright	Lamport & Holt Line, Ltd.
Cairnavon	GPJN	18.11.52	G. H. Percy	J. Hayes, J. Sutherland, J. N. Luke	A. Henderson	Cairns, Noble & Co.
Cairndhu	GPBB	4.3.53	J. W. Scott	W. N. Gordon, J. Hogg, J. Farnworth	T. W. Lawson	Cairns, Noble & Co.
Cairnesk	GMKR	14.2.53	G. R. Norvell	D. W. Staddon, L. Edwards, G. Pattison	W. Greaves	Cairns, Noble & Co.
Cairngowan	GNZZ	15.1.53	J. G. Foster	J. Lobban, J. E. Potter, T. Donaldson	E. Johnston	Cairns, Noble & Co.
Caledonia	GCKR	31.12.52	D. Blair	W. S. Thompson, O.B.E., J. Moncrieff, D. Lamont, J. Dunnipace	J. Cragge	Anchor Line, Ltd.
Canton	GDDT	16.4.53	J. C. W. Last	J. G. Clark, G. Howe, F. Ewell	M. J. Murphy	P. & O. Steam Navigation Co.
Cape Clear	GCKN	14.3.51	J. R. McIntyre	J. S. Taylor, A. M. Fraser, D. Fox	D. G. Lang	Lyle Shipping Co., Ltd.
Cape Grafton	MAIF	26.3.53	P. A. Wallace	F. Saunders, E. Rebane, F. O. Ridley	R. Atkin	Lyle Shipping Co., Ltd.
Cape St. Mary		17.12.51	J. A. Robson			West African Fisheries Research Institute
Capetown Castle	GKGM	18.4.53	H. A. Deller	T. Jones, G. J. Wright, J. McCarthy	P. P. Williams	Union Castle Mail S.S. Co., Ltd.
Captain Cook	GLBX	16.4.53	J. Cook	I. Downey, J. Hunter, N. Dalziel, T. Burke	L. W. Hooper	Donaldson Bros. & Black, Ltd.
Carnarvon Castle	GJSL	27.1.53	J. F. Oakley	G. R. W. Archer, O. Gillson, D. C. Byers, J. Voss	H. G. Liggins	Union Castle Mail S.S. Co., Ltd.
Caronia	GYKS	25.4.53	A. B. Fasting, R.D., R.N.R.	P. J. Mullen, W. G. Smith, K. P. Wilkinson, H. Hurtley	G. Parsons	Cunard Steamship Co., Ltd.
Caslon	MCJR	3.2.53	J. M. Cherry	G. Brown, W. Coull, R. Rawlings	C. Cornish	Runciman (London), Ltd.
Carthage	GRNX	30.6.52	R. G. Freeman	P. J. Stead, B. B. Jones, —. Hansing	—. O'Leary	P. & O. Steam Navigation Co.
Cavina	GKFV	5.11.52	T. H. Bull	W. Littlewood, R. Nicholson, J. Beatson	A. Morton	Elders & Fyffes, Ltd.
Caxton	GCDX	10.2.53	J. G. Wilson	R. Goodfellow, W. Hendry, B. A. King	W. Edmunds	Runciman (London), Ltd.
Ceramic	GFLM	10.2.53	F. A. Smith	G. Perry, D. Wright, P. Marsland	W. Dockerty	Shaw, Savill & Albion Co., Ltd.

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Chantala	GQMR	25.4.53	H. F. Collinson	W. L. Larbey, J. Leeson, W. A. Taylor	G. J. Fyffe	British India Steam Navigation Co.
Chepman	GFVR	26.1.53	F. Hamilton	I. F. Glen, P. R. Robinson, J. W. Peck	D. Briggs	Runciman (London), Ltd.
Cheshire	GLXV	21.4.53	P. H. Potter	J. J. Mullins, J. J. Butterworth, R. T. Stoneley	C. Beyer	Bibby Bros. & Co.
Chindwara	GFRT	24.1.53	B. A. Rogers, D.S.C., R.D., R.N.R.	F. Bell, B. Brooking, A. S. Bolles, J. N. Rose, P. H. Ireland	R. C. Law	British India Steam Nav. Co., Ltd.
Cilicia	GDGL	21.4.52	R. H. Harris	D. McLeod, G. Ramage, M. McFarlane, A. McLean	F. Alcock	Anchor Line, Ltd.
Cingalese Prince	GFRC	17.4.53	J. D. Fraser	H. E. Jennings, T. J. Sax, R. Harcus, D. Lewis	T. Coffey	Prince Line, Ltd.
City of Barcelona	GTKR	3.2.53	—. Ramsay	C. A. Quinn, W. James, M. S. Lewis	W. Fryer	Ellerman Lines, Ltd.
City of Birmingham	GZLR	25.4.53	W. S. Doidge	H. M. Farquhar, R. Tyrell, T. E. Jackson	A. Hannon	Ellerman Lines, Ltd.
City of Bristol	GCPN	6.3.53	W. Nimmo, M.B.E.	J. Tattersall, G. Francis, J. B. Waugh, T. Spengler	H. J. Bartlett	Ellerman Lines, Ltd.
City of Calcutta	GLYX	23.10.52	M. L. Hernan, M.B.E.	D. Wardlaw, J. A. McIntyre	J. J. Sheehy	Ellerman Lines, Ltd.
City of Cape Town	GBBQ	31.12.52	H. G. White	M. B. Perry, W. J. Lee, I. H. Craig	F. Devline	Ellerman Lines, Ltd.
City of Carlisle	GBJK	31.3.53	W. A. Hannah, O.B.E.	D. Williams, D. B. Butler, J. Hardie	P. Everett	Ellerman & Bucknall S.S. Co., Ltd.
City of Chester	MAHN	10.3.53	R. L. Stewart	I. G. Lumley, E. G. A. Smith, E. Kay	A. R. Childe	Ellerman Lines, Ltd.
City of Delhi	GLBW	3.10.52	W. Lowe	L. R. Keith, R. G. McMahon, N. Johnson	F. Cullen	Ellerman Lines, Ltd.
City of Derby	GFWC	9.9.52	J. Ingoldsby	A. Burnett, R. Clark, J. M. Turner	A. Hill	Ellerman Lines, Ltd.
City of Dieppe	GSVQ	31.10.52	W. S. Doidge	M. J. Bird, I. B. Taylor	J. Murdoch	Ellerman Lines, Ltd.
City of Durham	GBJM	28.4.53	T. G. Mathias	A. G. Hine, G. Stewart, G. Grenfell	R. Slater	Ellerman Lines, Ltd.
City of Evansville	GJNF	26.3.53	A. M. Westlake	W. F. P. Cannell, R. F. Arnold	T. Berry	Ellerman Lines, Ltd.
City of Johannesburg	GBKW	11.2.53	T. H. S. Speakman	—. Faulkner, —. Somerville, E. Fawcett, D. M. MacDonald	A. R. Henderson	Ellerman Lines, Ltd.
City of Khartoum	GBZC	30.10.52	J. Robertson	I. Butcher, C. F. Hunt, R. Walker	J. Cameron	Ellerman Lines, Ltd.
City of Lichfield	GCXL		B. E. Hooper	D. Russell, —. Quinn, G. Brewer	—. McLaughlin	Ellerman Lines, Ltd.
City of Lille	GSLN	22.5.52	W. A. Owen	W. R. Strachan, R. M. Bellhourse, G. H. Trevitt	C. Pickles	Ellerman Lines, Ltd.
City of Lyons	GMCN	27.3.53	C. G. E. Griffith	J. A. Parsons, A. Ledger, R. P. Wakefield	F. Hickey	Ellerman Lines, Ltd.
City of New York	GLYQ	10.2.52	T. F. Labey	N. Paskin, J. L. Blanche, R. G. Binnie	T. Gaffney	Hall Line, Ltd.
City of Pretoria	GBLN	19.2.53	A. G. Freeman	E. Page, —. Thubron, D. A. Broadway	K. G. Arthur	Ellerman & Bucknall S.S. Co., Ltd.
City of Swansea	GBZT	12.3.53	F. J. H. T. Vizer	M. J. Swan, F. C. O'Neil, R.D., R.N.R., G. R. Rainier, P. Stewart	R. L. Mullins	Ellerman Lines, Ltd.
City of Sydney	GSFM	19.3.53	G. F. Sumpton	R. F. Moon, M. W. Hartley, E. E. Cooper	D. C. Clayton	Ellerman Lines, Ltd.
City of Windsor	GJYR	6.1.53	T. L. Vaughan	T. Dickson, H. Lewis, B. Torrance	J. Huyton	Ellerman & Bucknall S.S. Co., Ltd.
Clan Brodie	GKPD	13.4.53	B. Vernon-Browne	A. Crawford, E. Coote, B. Abbott	D. Wilson	Cayzer Irvine & Co., Ltd.
Clan Buchanan	GKNM	2.12.52	J. Forster	H. White, J. Nutt, J. Burgoyne, P. Hoblyn	P. D. Stapleton	Cayzer Irvine & Co., Ltd.
Clan Campbell	GDZK	20.4.53	H. C. Simpson, O.B.E.	W. Zaborski, R. Gibson, G. Pow	R. F. Cole	Cayzer Irvine & Co., Ltd.
Clan Chattan	GFBX	9.1.52	J. McCrone	W. S. Clarke, N. Wallace, J. A. Brown, O. Ross	E. J. Shillabeer	Cayzer Irvine & Co., Ltd.
Clan Chisholm	GFBY	3.11.52	G. Vernon-Greene	A. Young, J. Wilkie, N. Williams	H. G. P. Macnamara	Cayzer Irvine & Co., Ltd.
Clan Davidson	MAWU	10.12.52	T. A. Watkinson	D. S. Williams, J. Molyneux, P. C. W. Hoblyn	J. E. Appleton	Cayzer Irvine & Co., Ltd.
Clan Forbes	GPGB	15.7.52	W. R. Woodriffe	J. H. Graham, B. C. Peat, S. Smart, R. Dale	J. M. Humphries	Cayzer Irvine & Co., Ltd.
Clan Macaulay	GZCS	7.4.53	A. G. Storkey	R. A. Green, T. R. Halliday, D. W. Simpson, B. W. Holman	W. H. Saville	Cayzer Irvine & Co., Ltd.

Clan MacDonald ..	GCPG	27.3.53	A. J. Hogg	J. A. S. Rendell, —. Grey, G. S. Gann, P. Deslandes	G. Martyn	Cayzer Irvine & Co., Ltd.
Clan MacDougall ..	GFBQ	20.1.53	P. MacMillan	P. C. Byrne, G. R. Thomas, D. Thomas, G. Rogers	C. E. C. Crewe ..	Cayzer Irvine & Co., Ltd.
Clan MacKinnon ..	GKLX	15.4.52	S. R. J. Woods, D.S.C., R.D., R.N.R.	F. G. King, W. J. Allan, B. J. Marette ..	A. Halcrow	Cayzer Irvine & Co., Ltd.
Clan MacLaren ..	GSSC	6.1.53	A. G. MacPherson ..	A. C. Bromfield, R. Shattock, C. Marshall	R. Moore	Cayzer Irvine & Co., Ltd.
Clan Maclean ..	GSWX		H. Whitehead	W. D. B. Davidson, J. H. Beavan, J. G. Smith	R. Beddie	Cayzer Irvine & Co., Ltd.
Clan Macrae ..	MAHP	11.12.52	E. Coulthart	R. S. Schooling, P. A. Smith, M. McCabe	N. Dalzell	Cayzer Irvine & Co., Ltd.
Clan MacTavish ..	GUBB	3.2.53	E. Gough, O.B.E.	M. R. Learner, C. C. Atkinson, T. R. Parsons, J. Hogg	W. Ellmers	Cayzer Irvine & Co., Ltd.
Clan Shaw	GBYN	8.1.53	F. J. E. Houghton ..	G. G. Greenfield, A. M. Kennedy, E. M. Phelps, D. Hindle	G. H. Hudd ..	Cayzer Irvine & Co., Ltd.
Clan Sutherland ..	GFWZ	7.6.52	H. J. Anchor, O.B.E., A.D.C., R.D., R.N.R. ..	W. Cathero, L. W. Gibbons, J. Messenger, D. R. Ward	W. Gay	Cayzer Irvine & Co., Ltd.
Clan Urquhart ..	GFBK	2.4.53	T. W. Inman, O.B.E. ..	L. S. Jones, K. Morton, R. D. Bulmore, I. C. Ives	A. I. MacIntyre ..	Cayzer Irvine & Co., Ltd.
Clearpool	MAHQ	25.3.53	J. H. Atkinson	K. Forrester, N. B. Smith, T. Newton ..	F. Mullen	Sir R. Ropner & Co., Ltd.
Clydebank	GKLM	26.11.52	P. D. MacFarlane	H. K. Stevens, C. V. Sawyer, A. H. Whitelaw	G. Murphy	Andrew Weir & Co., Ltd.
Columbia Star ..	GQGT	4.2.53	F. Hambridge	J. W. Poole, T. Thornton, S. Buchanan, M. Hawes	J. Noonan	Blue Star Line, Ltd.
Condesa	MAHU	10.3.53	H. Heal	R. Tinmouth, N. H. England, E. White	M. Prior	Furness-Houlder Argentine Lines, Ltd.
Consuelo	GCGQ	16.4.53	H. Greenhill	J. A. Pettinger, R. Massam, J. A. Green	D. Withers	Ellerman's Wilson Line, Ltd.
Corfu	GRNW	31.12.52	E. F. Ferraby	J. E. Hancock, R. Elenor, D. J. Harrison	W. Freeman ..	P. & O. Steam Navigation Co.
Corinthic	GZYL	2.3.53	A. C. Jones	H. Falkener, D. H. Clarke, D. Aberdeen, —. Wooler	S. Rickards	Shaw, Savill & Albion Co., Ltd.
Corrales	GSJL	27.1.53	J. Kinsley	E. Whitehouse, H. Beyer, F. Spalton ..	E. A. Loft	Elders & Fyffes, Ltd.
Corrientes	GFPT	21.4.53	K. McLeod	A. Maclean, J. H. Stark, J. Hood ..	N. W. Wilding ..	Donaldson Bros. & Black, Ltd.
Coulgorm	MAHZ	12.11.52	J. C. Skears	H. Young, C. Hardy, M. Sutcliffe ..	J. Meaney	Lambert Bros. Ltd.
Craftsman	GPZT	3.2.53	T. B. Littlechild	F. R. Robinson, C. B. Thomson, E. J. Cassell	K. Lax	T. & J. Harrison, Ltd.
Crofter	MNGX	10.3.53	S. Diamond	W. D. Aitken, D. R. Carden	F. Jones	T. & J. Harrison, Ltd.
Cumberland	GPPY	13.4.53	J. S. Oxnard	O. Springett, P. A. Ogden, A. A. Faulkner, R. Holdsworth	T. Laing	Federal Steam Nav. Co., Ltd.
Cuthbert	GFNW	27.10.52	G. G. Roberts	M. S. Ready, N. F. Sharpe, G. Smythe	D. Fisher	Booth S.S. Co., Ltd.
Cuzco	GKPF	10.4.53	R. D. S. Eckford	A. M. Jestico, G. Pattison, W. Holmes ..	A. Evans	Pacific Steam Navigation Co.
Daleby	MFBV	21.4.53	J. Kenney	R. A. Vance, E. A. Snaith, A. F. Carlton-Curry	M. R. Carney ..	Ropner Shipping Co., Ltd.
Dallas City	GCLS	21.3.53	D. W. Boutcher	R. M. Paton, W. Cross, D. W. Henderson	D. Owens	Sir William Reardon Smith & Sons, Ltd.
Darro	MAID	9.4.53	T. Powell	G. Rogers, P. G. Driver, T. Challis ..	J. Heeney	Royal Mail Lines, Ltd.
Debrett	GRPR	19.1.53	D. C. Roberts	R. M. Dunning, R. E. Wildgoose ..	B. Thompson ..	Lamport & Holt Line, Ltd.
Deerpool	GKDY	8.4.53	C. H. Churchill	D. M. Small, E. M. Stewart, K. B. Dines	A. Owen	Sir R. Ropner & Co., Ltd.
Defoe	GNWF	5.3.53	W. J. M. Ankers	D. Cordova, J. E. Russell, V. Charles ..	T. Pickering ..	Lamport & Holt Line, Ltd.
Delane	MMNW	22.1.53	E. L. Jermyn	A. Corlett, N. Garvey, N. L. Mylchreest	J. Brown	Lamport & Holt Line, Ltd.
Delilian	GJSQ	5.1.53	J. S. MacMillan	J. McCormick, S. P. Ewing, J. Johnston	W. J. Read	Donaldson Bros. & Black, Ltd.
Delius	GZSY	26.3.53	A. W. Mitchell	I. B. Owen, E. D. Spooner, D. S. Sapp ..	S. Bolderston ..	Lamport & Holt Line, Ltd.
Delphic	MBLQ	13.4.53	C. L. Carroll, D.S.C., R.D., R.N.R.	B. Hammond, P. G. Morgan, J. Hurst, M. W. Robinson	A. Morris	Shaw Savill & Albion Co., Ltd.
Deseado	MAIH	9.4.53	H. E. Sang	H. Lloyd, C. Ratcliff, A. Brook, D. Byrne	J. Forrest	Royal Mail Lines, Ltd.
Devis	GFKT	26.2.52	W. Gillespie	W. Peters, R. Garcia, W. J. Neill ..	W. Gillespie ..	Lamport & Holt Line, Ltd.
Devon	GDRF	24.2.53	A. Hocken	J. Weston, G. Pool, J. Campbell ..	J. Tomlinson ..	Federal Steam Nav. Co., Ltd.

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Dilwara	GYQV	24.1.53	M. Williams	S. D. Lester, I. K. Bowerman, E. C. Plowman	S. J. Taylor, M.B.E.	British India Steam Nav. Co., Ltd.
Dominion Monarch	GRGG	31.12.52	D. Aitchison	R. J. J. Theakston, C. A. Brodie, G. B. Broom	F. Harford	Shaw, Savill & Albion Co., Ltd.
Dorelian	GJTL	20.4.53	D. McQueen	D. J. Butterworth, I. MacFarlane, I. Connell	T. W. Moody	Donaldson Bros. & Black, Ltd.
Dorset	GZFQ	16.4.53	A. E. Williams	B. Whybrow, W. Dan, A. Mash	A. Calder	Federal Steam Nav. Co., Ltd.
Drina	MAIL	19.2.53	D. R. Miller	R. Brockbank, J. Derby, G. Bonner	D. Franklin	Royal Mail Lines, Ltd.
Duke of Athens	GMYS	11.6.52	T. Walton	T. D. Wright, T. Owen, E. J. Griffiths	E. J. O'Connor	Trent Maritime Co., Ltd.
Dunedin Star	GKKT	6.12.52	J. D. W. Davis	J. Davies, G. Miles, O. Edwards	R. B. Read	Blue Star Line, Ltd.
Dunera	GBBR	15.4.53	A. A. Kay	F. Hills, C. R. S. Monk, M. J. Hine, B. Davies	T. Shannon	British India Steam Nav. Co., Ltd.
Dunkery Beacon	GUFS	8.5.52	A. C. E. Green	A. Tatchell, J. Twite, D. Bervick	G. Delahoy	Phs. Van Ommeren (London) Ltd.,
Durango	MAIM	28.1.53	H. Wright	B. Y. Harrison, J. D. S. Salt, D. Stratton	H. Davis	Royal Mail Lines, Ltd.
Durban Castle	GPGP	5.12.52	J. A. Sowden	J. Archibold, R. Kerr, S. Beaumont	J. Drover	Union Castle Mail S.S. Co., Ltd.
Durenda	GFSL	18.11.52	A. H. Usher	F. W. Hodgson, J. Suter	—. Bell	British India Steam Nav. Co., Ltd.
Durham	GWWK	3.12.52	J. D. Bennett	B. Meads, D. Moran, D. Handley	J. F. McNeil	Federal Steam Nav. Co., Ltd.
Eastbank	GFKR	27.4.53	C. S. Holbrook	J. Scott, C. G. Watterson, C. M. Banks	A. J. Dunn	Andrew Weir & Co., Ltd.
Edenfield	GFJF	18.4.53	J. Mallam	W. Campbell, F. B. Fairweather, J. Swindles	M. Wilson	Hunting & Son, Ltd.
Edinburgh Castle	GOHN	28.1.53	T. W. McAllen	J. Drought, M. K. Campbell, J. Rea	J. Hodgson	Union Castle Mail S.S. Co., Ltd.
Egidia	GJZD	22.12.52	J. L. Gibson, O.B.E.	R. Jones, W. B. Sawyers, R. L. Richards, A. Fulton	P. McBride	Anchor Line, Ltd.
Elysia	GJZK	6.10.52	D. MacVicar	H. Thoms, H. Keenan, G. George, W. Carmichael	C. Cornish	Anchor Line, Ltd.
Empire Clyde	GDXS	27.4.53	A. C. Johnston	A. Campbell, W. Thomson, W. Hallum, W. Marshall	D. Thompson	Anchor Line, Ltd.
Empire Fowey	GMFW	27.4.53	W. T. C. Lethbridge	J. J. Shaw, G. E. Harris, J. W. Bonner, R. A. Game	P. Maloney	P. & O. Steam Nav. Co.
Empire Halladale	GPVQ	19.3.53	D. Barclay	W. Cameron, R. Watt, H. A. Cameron	D. Robson	Anchor Line, Ltd.
Empire Ken	GKZJ	1.4.53	P. M. Burrell	R. J. Beaumont, E. D. Long, A. R. Hanily, R. J. Howlett	E. Winslow	Royal Mail Lines, Ltd.
Empire Orwell	GRCB	3.11.52	N. W. Smith	G. K. Harrison, D. Blois, C. A. Howard, J. R. English	A. C. Shippam	Orient Steam Nav. Co., Ltd.
Empire Patrai	GDKL	18.9.51	R. J. Young	S. O. Nazar, A. Honnor	C. J. Higginson	Fenton S.S. Co., Ltd.
Empire Pride	MAJB	13.4.53	G. Dobson, R.D., R.N.R.	R. Hammond, J. McKinlay, K. P. Bennett	D. Alcock	Bibby Bros. & Co.
Empire Star	GCDP	1.4.53	D. J. Stratta	E. A. Davies, —. McGregor, G. C. Jones, —. Austin	W. J. Fitzgerald	Blue Star Line, Ltd.
Empire Viceroy	MAJN	6.4.51	J. B. S. Bland	A. M. Brockwell, C. D. Mason, J. W. Abbott	W. Clarke	Pandelis Shipping Co., Ltd.
Empire Windrush	GYSF	16.3.53	W. Wilson, O.B.E.	P. Bower, R. M. Michael, B. Baggot	F. Fowler	New Zealand Shipping Co., Ltd.
Empress of France	GNTV	30.1.53	S. W. Keay	G. Geddes, F. Granger, C. Paul	E. Murphy	Canadian Pacific S.S., Ltd.
Empress of Scotland	GMLV	9.4.53	C. E. Duggan, R.D., R.N.R.	N. Saddington, R. N. Walker, G. Palmer	W. Campbell	Canadian Pacific S.S., Ltd.
English Star	MFSS	2.2.53	L. Vernon, M.B.E.	E. S. Neave, G. Seaye, L. Graham	J. Allen	Blue Star Line, Ltd.
Enton	GNLF		R. F. Hellings	F. N. Dalzell, J. Blake, F. Wray	E. Ingham	Birt, Potter & Hughes
Erodona	GZLQ	31.12.52	C. D. Michael, M.B.E.	J. Mackie, R. W. Denmark, D. Grantham	E. Grant	Anglo-Saxon Petroleum Co., Ltd.
Esperance Bay	GSMP	8.12.52	H. C. Smith	J. Yarwood, A. Durrell, J. S. McEwan, —. Adams	H. H. Lyons	Shaw, Savill & Albion Co., Ltd.
Essequibo	GKPK		T. W. F. Bolland	R. C. C. Frizell, —. Park, M. Larrive		Royal Mail Lines, Ltd.

Essex Trader	GCMS	22.10.52	D. G. Evans	D. A. Owen, E. Jones, E. Whislay	H. W. Tubb — Trader Navigation Co., Ltd.
Esso Bedford	GGJL		F. Hewlett	J. G. Ridley, D. Murphy, D. Partridge	G. W. Hutchinson — Esso Transportation Co., Ltd.
Esso Edinburgh	GCQM	17.3.53	J. O'Niell	E. G. Miguel, J. Elliot, J. Knight	C. Torrens — Esso Transportation Co., Ltd.
Esso Glasgow	GTXC	22.4.53	W. T. MacDonald	A. Monaghan, A. Arthur, J. Wright	D. Henderson — Esso Transportation Co., Ltd.
Esso Plymouth	GYRX	13.4.53	E. Orr	J. Godden, B. Cullingford, K. S. M. Campbell	R. Watson — Esso Transportation Co., Ltd.
Etivebank	GDMK	1.12.52	D. Gillies	E. N. Jolly	V. I. Davies — Andrew Weir & Co., Ltd.
Eucadia	GJZL	5.2.52	D. Morrison, O.B.E.	R. Murdoch, A. MacAdam, T. Patience	D. Sproat — Anchor Line, Ltd.
Explorer	GYJX	29.4.52	G. I. Jones	R. Patmore, D. O. Lindsay, R. H. Douglas	—. Roberts — T. & J. Harrison
Fanad Head	GNQQ	13.4.53	W. J. Leinster	N. K. Alwood, C. E. Pringle, R. Maxwell	J. McCarthy — G. Heyn & Sons, Ltd.
Flamenco	GCBV	25.4.53	A. G. Litherland	D. J. Houghton, F. J. Leicester, O. A. Baker	L. Riccoboni — Pacific Steam Navigation Co.
Franconia	GBRQ	25.4.53	W. M. Stewart, O.B.E.	B. Newcomb, J. Wise, R. F. Hungerford-Morgan	J. Crosbie — Cunard Steamship Co., Ltd.
Fremantle Star	MQFT	21.3.53	C. R. Horton, D.S.C.	M. K. Drummond, E. W. Jenkins, M. G. Tonkin	L. F. Stewart — Blue Star Line, Ltd.
Fresno City	GBYD	13.4.53	D. L. Beynon	B. G. Sharp, I. C. Hughes, B. E. Shearer	M. Lawrence — Sir William Reardon Smith & Sons, Ltd.
Geologist	GJMR	27.2.53	A. E. Jackson	S. W. Gamble, G. A. Cain, A. Garland, F. Maxwell	H. G. Sparkes — T. & J. Harrison
Georgic	GRLJ	17.12.52	G. H. Morris	R. J. Manson, M. Ridge, A. W. Leyland, F. J. Storey	G. Hill — Cunard Steamship Co., Ltd.
Glaucus	GDYZ	6.1.53	H. S. Wood	J. Bold, N. N. Robertson, I. MacKay	G. Thorne — A. Holt & Co.
Glenartney	GBLG	18.4.53	H. Readshaw	H. K. Timbrell, J. B. Swindells, A. Johnson	A. J. Foster — Glen Line, Ltd.
Glenbank	GKLC	26.2.53	J. W. Greig	F. B. Rodgers, D. C. Broome, A. F. Wigham	G. Ricaud — Andrew Weir & Co., Ltd.
Glenorchy	GBLL	11.4.53	P. Cross	J. T. H. Bennion, P. D. F. Cruickshank, K. N. Owen	R. Bradshaw — Glen Line, Ltd.
Gloucester	MANK	30.1.53	F. Loughhead	A. W. Hibble, R. Hales, R. A. Martin, B. Crust	L. Sayers — Federal Steam Nav. Co., Ltd.
Golfito	GBYL	15.4.53	S. A. Sapsworth	J. Higgins, W. Littlewood, G. Wallis	R. W. Smith — Elders & Fyffes, Ltd.
Gothic	MAUQ	27.4.53	A. V. Richardson, O.B.E.	L. M. Howells, J. A. Williams, P. Mincer	A. Gandon — Shaw, Savill & Albion Co., Ltd.
Gracia	MANN	2.2.53	J. McInnes	J. Aitken, R. S. MacAulay, D. G. Hall	W. Duguid — Donaldson Bros. & Black, Ltd.
Graig	MFDS		S. Glyn-Woods	W. Coombs, G. Owen, A. J. Hutchings	D. Stevenson — Idwal Williams & Co., Ltd.
Granford	MQGC	3.10.52	E. C. J. Morgan	J. Brown, L. T. Edwards, D. Styles	S. Taylor — Goulandris Bros., Ltd.
Great City	GBYS	28.11.52	H. Sharp	H. Justen, A. J. Milward, P. V. Beatty	G. F. Cowie — Sir William Reardon Smith & Sons, Ltd.
Haparangi	GJYX	30.3.53	D. Chadwick	B. Walker, E. Cooper, W. Gibson, I. Davidson	E. Grahame — New Zealand Shipping Co., Ltd.
Harpalycus	GYNB	16.4.53	R. Stott, O.B.E.	B. O'Sullivan, J. G. Neilson, W. Mills	J. I. Waddell — J. & C. Harrison, Ltd.
Hartington	GFCZ	27.2.53	G. Jones, M.B.E.	J. C. Castle, W. R. Vickers, G. D. Judd	H. T. Hamer — J. & C. Harrison, Ltd.
Helicina	GKBC	19.3.53	J. A. Thomson	W. Lloyd, C. D. Atkinson, D. H. White, D. H. G. Mortimer	P. Goss — Anglo-Saxon Petroleum Co., Ltd.
Herdsman	GPZX	6.1.53	T. E. Steele	W. E. Owen, G. Penston, J. A. Roberts	P. Moss — T. & J. Harrison
Herefordshire	GOFG	14.1.53	H. B. Peate, D.S.C., R.D., Cdr. R.N.R.	O. C. Ashcroft, D. J. Sedgwick, J. F. Beckett	A. G. Johnson — Bibby Bros. & Co.
Hertford	GKNW	3.2.53	H. N. Lawson, R.D., R.N.R.	E. Reed, A. B. Stalker, S. Oates, J. Varney	T. M. Ready — Federal Steam Nav. Co., Ltd.
Highland Brigade	GJKN	7.11.52	A. N. Anderson	E. J. O'Keefe, A. Acason, L. Tenner	J. Desborough — Royal Mail Lines, Ltd.
Highland Chieftain	GCTY	25.11.52	W. H. Grimshaw, O.B.E.	J. L. Frain, A. Brook, A. Whittle	W. Rollason — Royal Mail Lines, Ltd.
Highland Monarch	GMZF	9.4.53	—. Miller	R. R. Thompson, J. Evans	F. Dunns — Royal Mail Lines, Ltd.
Highland Princess	GFMN	5.7.52	S. J. G. Hill	D. Stratton, D. B. Cairns, R. B. Dales, C. B. Lambert	F. Goodall — Royal Mail Lines, Ltd.
Hilary	GQVM	28.11.52	E. Jones	G. Calvert, K. B. Murray, J. Mawhinney	W. Maudsley — Booth S.S. Co., Ltd.

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Hildebrand	GKTK	6.1.53	J. Whayman, D.S.C., R.D., R.N.R.	A. Niblock, F. H. Sergent, G. Davis	D. Douglas	Booth Steamship Co., Ltd.
Himalaya	MCDY	12.2.53	S. W. S. Dickson	G. E. V. Holmes, J. F. T. Houghton, R. A. Gibbons	J. F. Clark	P. & O. Steam Navigation Co.
Hinakura	GDVS	30.1.53	N. L. Warren	J. H. Burn, C. A. Miller, R. Lane, S. W. Lambrick	G. Miller	New Zealand Shipping Co., Ltd.
Hororata	MANZ	9.1.53	E. H. Hopkins	J. Cosh, F. C. Taylor, C. S. Keay, D. J. Cauldwell	T. Green	New Zealand Shipping Co., Ltd.
Huntingdon	GFCT	11.11.52	P. S. Calcutt	D. B. Gaskell, G. Simpson, G. Caulfield	A. Wallace	Federal Steam Nav. Co., Ltd.
Hurunui	GJZF	31.12.52	H. E. Reilly, D.S.C., R.D., R.N.R.	D. Newman, H. Sladen, J. Hellings, B. Whelan	A. H. Sandilands	New Zealand Shipping Co., Ltd.
Hyrcania	MADE	30.6.52	J. M. Robertson	W. J. Knox, P. G. Mason, T. J. Jones	G. Hicks	Baltic Trading Co., Ltd.
Imperial Star	GIAC	9.1.53	G. C. Goudie	R. Bayley, D. Brewster, A. Payne, R. Stark	W. H. Jones	Blue Star Line, Ltd.
Inishowen Head	MAOC	29.10.52	R. A. Ferguson	S. Thompson, A. Fee, D. W. Griffin	A. E. Adams	G. Heyn & Sons, Ltd.
Interpreter	GPZY	6.12.52	H. Coates	A. Baxendale, A. H. Hughes, G. Harvey	W. Bennett	T. & J. Harrison
Inverbank	GKML	12.1.52	R. A. Lorrains	J. A. Niblock, P. N. Etherington, J. Aldiss	D. Murphy	Andrew Weir & Co., Ltd.
Jamaica Producer	VPLM	29.11.52	G. E. M. Jenkins	J. A. Whitehouse, T. A. Kidd, T. B. Bird, J. Crone	E. Brown	Kaye Son & Co., Ltd.
Jersey City	GIGA	17.10.52	T. Dodds	S. Gallagher, E. Prior, C. Davidson	L. Butcher	Sir William Reardon Smith & Sons, Ltd.
Jessmore	MAOF	11.6.52	R. E. Holland	P. Fryer, R. Gibson, R. Douglas	J. Mathieson	Furness Withy & Co., Ltd.
John Biscoe	VPNE	31.7.52	W. Johnston	M. R. Brown, H. Preece, C. Le Page Croft	W. Bonner	Government of the Falkland Islands
John Holt	GNFD	27.3.53	R. Atkinson	R. J. Griffiths, A. D. Farrell, F. G. Hardy	J. H. Sheary	John Holt Line, Ltd.
Kaipaki	GQGJ	19.3.52	N. Fraser	L. Morris, H. Adler, B. Tong	A. Hudson	Trinder Anderson & Co.
Kaipara	GZPY	1.10.52	E. J. Ridout	H. O. T. Fuller, J. Sey, M. Foster	E. Carver	Trinder Anderson & Co.
Kaituna	GQGG	17.4.53	J. F. Wood	P. Johnson, I. Cameron	S. Woodward	Trinder Anderson & Co.
Kenilworth Castle	MQLP	17.4.53	T. H. Whatley	—. Hatsher, A. Lewis, —. Pellow	S. N. Crabtree	Union Castle Mail S.S. Co., Ltd.
Kent	GPDC	6.1.52	P. Hollingdale	P. Hilliard, J. Camping, W. Knight	T. G. Terrell	Federal Steam Nav. Co., Ltd.
Kenuta	GCBW	16.3.53	J. D. Richards	J. Farrel, J. E. Evans, D.S.C., R.D., R.N.R., G. E. Turner	C. A. De Vine	Pacific Steam Nav. Co.
King Robert	MAON	11.7.52	G. Craze	G. Dando, P. W. Kidd, A. D. Terras	J. P. Murphy	King Line, Ltd.
King William	GNVF	1.1.53	J. C. Davies	G. B. Craig, T. Fairclough, E. Foley	A. Watt	King Line, Ltd.
Kingston Onyx	MLFP		A. R. Cornish			Kingston Steam Trawling Co., Ltd.
Kohistan	GSFZ	24.11.52	A. N. Henderson	C. O. Jones, C. P. Bridgewood, D. McAskill	J. Armitage	F. C. Strick & Co., Ltd.
Koyan	GKST		W. McIntosh	A. T. MacDougall, S. J. Jackson, F. Green	A. N. Gilbert	P. Henderson & Co.
Lanarkshire	GCTC	18.12.52	A. R. Cossar	P. M. Gouger, G. W. Spiller	H. H. Mann	Turnbull Martin & Co., Ltd.
Lancashire	GLZC	24.2.53	N. F. Fitch, M.B.E.	J. W. Waldie, D. Hine, T. G. Hughes, J. F. Code	A. Jones	Bibby Bros. & Co.
Langton Grange	MAOT		J. R. Faulkner	H. Jenkins, M. Ditchburn, J. G. Gilbert	J. Cameron	Houlder Bros. & Co., Ltd.
Lassell	GFND	11.2.52	C. Underhill	M. L. Wellard, A. Corlett	J. J. Kennedy	Lamport & Holt Line, Ltd.
Latia	GLCF	29.11.52	G. E. Hunt	J. D. Lakeman, A. J. King, W. Clark		Anglo-Saxon Petroleum Co., Ltd.
Laurentia	GNDY	16.4.53	A. Bankier	W. F. Joyce, R. Durling, B. S. Brown	J. L. Robertson	Donaldson Bros. & Black, Ltd.
Levernbank	GLPZ	30.6.52	A. T. Stansfield	F. G. Howard, A. Dorkins, J. Scobbie	J. Simpson	Andrew Weir & Co., Ltd.
Linguist	GQBC	30.1.53	W. Weatherall	C. Boam, F. L. Steele, G. Barton	D. Berry	T. &. J. Harrison
Livorno	GPWF	13.8.52	H. Tadman	A. Telfer, S. Tognola, J. Ryan		Ellerman's Wilson Line, Ltd.
Lloydcrest	MAOY	25.6.51	L. Barwell	R. Thompson, S. J. Gawlik, M. Munce	F. Thornborough	Crest Shipping Co., Ltd.
Loch Avon	GMZT	7.4.53	C. E. Mason	K. R. Jones, G. Gulson, J. D. M. Collingridge	M. Littlejohn	Royal Mail Lines, Ltd.

Loch Garth	GMZY	25.4.53	J. Smith, R.D., R.N.R.	—. Arnott,—. Perkins, R. B. Hill, R. Foulkes	J. Greenhalgh	Royal Mail Lines, Ltd.
Loch Ryan	MAOZ	9.4.53	H. V. Todd, R.D., Cdr. R.N.R.	H. Nixon, A. E. Crebbin, J. L. Frain	N. T. Roberts	Royal Mail Lines, Ltd.
London Pride	GKTJ		A. W. Wilson	A. G. Lewis, R. Putt, D. Evans	P. O'Mahony	London & Overseas Freighters, Ltd.
Lord Gladstone	MAPA	1.11.51	C. L. Brien	C. A. Brown, H. Grayson, A. H. Benson, M. Warrick	A. G. Pews	Ships Finance & Management Co., Ltd.
Lotorium	GBLP	25.3.53	N. Clarke	D. S. Evans, J. C. Young, R.D., R.N.R., J. D. Kirkland	L. Barnett	Anglo-Saxon Petroleum Co., Ltd.
Macharda	GKKF	18.3.53	R. A. Penston	I. A. MacLaren, W. E. Kirkbride, G. Sinclair	D. Syme	T. & J. Brocklebank, Ltd.
Magdapur	GBJX	1.1.53	A. Hill, O.B.E.	R. E. Allen, R. Floyd, T. Parry	B. J. Smith, M.B.E.	T. & J. Brocklebank, Ltd.
Mahanada	GOFM	11.4.52	H. C. Kinley	A. W. M. Adlam, P. J. Pembridge, A. E. M. Ward, D. H. Player	G. Stone	T. & J. Brocklebank, Ltd.
Mahia	GNZV	28.10.52	—. Carrol	P. Murchison, —. Tucker, —. Hammond	G. Evans	Shaw, Savill & Albion Co., Ltd.
Mahout	GDZN	4.11.52	P. Wright	G. D. Symonds, J. Lyle, C. Lucas	P. Wright	T. & J. Brocklebank, Ltd.
Mahseer	GZSV	9.4.53	A. Bain	J. S. Emberton, A. W. Wiltshire, J. E. Millichap	R. Burton	T. & J. Brocklebank, Ltd.
Mahsud	GSCP	10.9.52	L. F. Dodson	D. G. Wild, A. B. Davies, P. Briscoe	H. D. Kirk	T. & J. Brocklebank, Ltd.
Maihar	GSCL	21.4.53	J. C. Nuttall	R. V. K. Robbins, J. S. Saxty, L. Fletcher	A. Holstead	T. & J. Brocklebank, Ltd.
Makalla	GOFN	13.12.52	T. Eddy	R. E. Roberts, M. Embleton, H. L. Burn, J. E. Millichap	R. Goodson	T. & J. Brocklebank, Ltd.
Malancha	GZRD	26.2.53	S. Broughton	J. C. Pears, A. Millar, C. Macadie	A. Goodwin	T. & J. Brocklebank, Ltd.
Malmesbury	MAQE	31.12.52	S. W. Howell	E. Cole, J. Hands, R. Jackson	J. Murphy	Houlder Bros. & Co., Ltd.
Maloja	GFBD	3.11.52	A. Jenkins	W. A. Read, C. B. Cooke, G. Miskin, R. Hubbard	W. Dawson	P. & O. Steam Navigation Co.
Manchester Division	GBYR	21.4.53	W. E. G. Oliver	P. A. Litherland, L. C. Taylor, D. C. Woodall	T. Berry	Manchester Liners, Ltd.
Manchester Explorer	GNBK	13.4.53	J. L. McLaren	G. K. Booker, T. H. Lynn, J. Bone	W. MacPherson	Manchester Liners, Ltd.
Manchester Merchant	MGZQ	13.12.52	E. W. Raper	D. S. Millard, J. Illingworth, A. G. Rowlands	A. Broadbent	Manchester Liners, Ltd.
Manchester Pioneer	GNVG	9.4.53	A. Starmier	J. Rushworth, J. Mann, K. W. Rourke	J. Buchanan	Manchester Liners, Ltd.
Manchester Progress	GPGD	8.4.53	H. Hancock	P. Cullen, J. Sullivan, J. E. Askew	W. Critchley	Manchester Liners, Ltd.
Manchester Regiment	GBRD	6.1.53	F. L. Osborne	F. Le Messurier, J. E. Jones, A. W. Barber	J. Reid	Manchester Liners, Ltd.
Manchester Shipper	MAPC	21.4.53	W. H. Downing	N. W. Cockshoot, F. Lewis, A. H. Varley, D. G. Thomas	E. Ambler, D.S.C.	Manchester Liners, Ltd.
Manchester Spinner	GNVB		F. D. Struss, O.B.E., D.S.C.	T. B. Hancock, J. L. McCartney, W. E. Quirk	P. B. McNab	Manchester Liners, Ltd.
Manchester Trader	GMWG	14.11.52	W. Hine, R.D., R.N.R.	G. R. Thompson, P. A. Litherland, F. Le Messurier	F. J. Fitzgerald	Manchester Liners, Ltd.
Mandasor	GBNY	21.3.53	G. A. Jackson, M.B.E.	J. R. Knott, C. Gray, J. K. Cooper	A. Rea	T. & J. Brocklebank, Ltd.
Manistee	GRXC	20.3.53	R. W. Lundy, O.B.E., R.D., R.N.R.	H. G. Penny, R. G. Dover, T. Griffiths, R. Boon	R. Bailey	Elders & Fyffes, Ltd.
Marengo	GLFW	24.2.53	F. Ellison	W. Skinner, J. K. Marrow, M. Robinson, S. Coldray	F. Ellison	Ellerman's Wilson Line, Ltd.
Margay	GFYQ	11.4.53	E. A. Prentice	M. H. S. Salter, N. W. Tipple, M. E. Jones	E. Leigh	Kaye, Son & Co., Ltd.
Markhor	GTFZ	15.9.52	J. B. Newman	N. M. Parry, J. Morris, D. Hay	D. Brown	T. & J. Brocklebank, Ltd.
Martand	GTGG	26.1.53	H. Fosbrooke	J. M. Coles, D. Moore, R. Holland	B. J. Guy	T. & J. Brocklebank, Ltd.
Martita	GNQT	10.3.52	H. Bunn	L. Manser, W. Webster, D. McKinnon	D. Hamble	Kaye, Son & Co., Ltd.
Mataroa	GCSV	13.4.53	R. G. James, R.D., R.N.R.	J. P. Miller, H. Riding, D. Durant	E. Boyce	Shaw Savill & Albion Co., Ltd.
Matheran	GOFQ	27.1.53	H. G. Allen, M.B.E.	W. J. Milne, A. R. Wood, O. Pritchard, E. T. H. Chambers	G. Caddy	T. & J. Brocklebank Ltd.
Matina	GSZX	9.4.53	W. Dodds	N. F. Deighton, W. Thompson, D. A. Hamilton	D. Knight	Elders & Fyffes, Ltd.
Mauretania	GTTM	15.4.53	—. Williams	M. B. Cox, R. Jones, J. Christie	A. Cannock	Cunard Steamship Co., Ltd.

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Media	GSWR	21.1.52	W. T. Fitzgerald, R.D., R.N.R.	J. S. Roe, G. W. B. Edwards, T. P. Jones	A. Hopkins	Cunard Steamship Co., Ltd.
Melbourne Star	GDFZ	19.1.53	C. Aldridge	C. Whitaker, —. Davis, T. A. Ireland	T. Archer	Blue Star Line, Ltd.
Mirror (C/S)	GDFL	7.4.53	A. J. Gales	J. S. Deane, A. Miller, J. H. Killick	N. R. Iden	Cable & Wireless, Ltd.
Modasa	GFDZ	7.1.53	W. A. Busby	P. Sutton, W. Brown, D. M. Taylor, R. J. Ralph	P. Sargent	British India Steam Nav. Co., Ltd.
Monarch (C/S)	GBDF	20.1.53	J. Betson	J. Pattison, M. Landes, H. M. Longden	T. Tilly	H.M. Postmaster-General
Mooltan	GFBC	23.2.52	J. M. Peter	D. Aikman, L. H. Kellett, J. Jenkins	J. Ormiston	P. & O. Steam Navigation Co.
Mulbera	GFTM	11.10.52	E. G. Baines	M. D. Squibbs, L. R. Holt, J. Chedgelewski	L. Phillips	British India Steam Nav. Co., Ltd.
Myrtlebank	GLQB	27.2.51	R. J. Owen	C. T. Lewis, A. Tavendale, A. Szimczak	F. McGuinness	Andrew Weir & Co., Ltd.
Napier Star	MAPN	12.2.53	T. W. Fleming	J. Howarth, D. G. Mallinger, G. Stubbins	R. Millar	Blue Star Line, Ltd.
Naticina	GIGH	16.4.53	J. M. Davidson	J. C. Taylor, R. Tinmouth, J. Sydenham	R. Prole	Anglo-Saxon Petroleum Co., Ltd.
Nestor	GNZG	10.3.53	J. M. Anderson	R. L. Brett, N. D. Robinson, D. S. Moreby, D. O. Lovering	H. Roberts	A. Holt & Co.
New Australia	GZKD	5.1.53	K. D. G. Fisher	J. R. Richmond, H. Last, W. Scott, A. Hendry, A. Borthwick	J. Marchmont	Shaw, Savill & Albion Co., Ltd.
New York City	MATR	10.4.53	F. R. Neil	C. F. Harfoot, A. Braid, A. Wright	T. Jenkins	Charles Hill & Sons, Ltd.
New Zealand Star	GYCR	27.10.52	E. N. Rhodes	G. E. Marsh, D. A. R. James, A. D. Wood	A. Ewart	Blue Star Line, Ltd.
Newfoundland	GNMC	28.4.53	C. H. Kenyon	M. J. Brown, P. Warne, D. Smith	T. Cahill	Furness Withy & Co., Ltd.
Nordic	GDJC	24.4.53	E. G. Jones	A. Uden, A. Adams, B. H. White	W. L. Stone	Prince Line, Ltd.
Norfolk	GJLV	15.1.53	H. D. Horwood, R.D., R.N.R.	R. E. Donald, R. S. Luly, M. R. Forcer, M. J. Charlesworth	R. Robinson	Federal Steam Nav. Co., Ltd.
Norwegian	GDMC	4.2.52	H. Wylie	J. Bailey, J. Short, R. S. Hopkins	C. Carpenter	Donaldson Bros. & Black, Ltd.
Nottingham	GCNC	15.11.52	L. W. Fulcher	P. Mather, R. Brown, J. Gair	M. Hookway	Federal Steam Nav. Co., Ltd.
Nova Scotia	GNNK	13.4.53	J. E. Wilson, O.B.E.	J. D. D. Williamson, C. Hollinshead, G. Stanford	W. J. Peat	Furness Withy & Co., Ltd.
Novelist	GMLG	17.5.52	F. Hill	J. F. Adams, R. H. Douglas, D. W. Baxendale	S. P. A. B. Douglas	T. & J. Harrison
Orari	GJKX	21.4.53	J. R. M. Ramsey	C. S. Single, A. Stokoe, J. Loveridge, P. Holloway	J. Robinson	New Zealand Shipping Co., Ltd.
Orcades	MABA	26.1.53	N. A. Whinfield	P. O. Anthony, B. Campbell, J. A. Bensley	F. Miller	Orient Steam Nav. Co., Ltd.
Oregon Star	MAPH	25.11.52	M. B. M. Tallack, O.B.E.	P. R. Trehearne, G. Bowden, J. B. Hall	W. Jones	Blue Star Line, Ltd.
Orion	GYKL	26.2.52	T. L. Shurrock, O.B.E.	J. W. Jackson, P. Watts, P. O. Anthony	P. Parrish	Orient Steam Nav. Co., Ltd.
Oronsay	GCNB	8.8.52	T. L. Shurrock, O.B.E.	E. J. Dilnutt, R. D. Cookman, H. Days	N. A. Boon	Orient Steam Nav. Co., Ltd.
Orontes	GBXM	8.1.53	A. E. Coles, R.D., R.N.R.	R. B. Stannard, V.C., D.S.O., R.D., R.N.R., D. Carroll, W. H. Benjamin	A. Quinton	Orient Steam Nav. Co., Ltd.
Otranto	GFKV	13.10.52	S. S. Burnnand, O.B.E.	P. O. Anthony, M. Champneys, G. M. McGowan	C. Seaton	Orient Steam Nav. Co., Ltd.
Pacific Fortune	GBFM	7.1.53	F. H. Perry	T. Gubbins, D. M. Harper, B. A. Gouldstone	J. R. Thomas	Furness Withy & Co., Ltd.
Pacific Importer	GDKV	26.2.53	G. Brown	J. L. Taylor, J. Tye, T. M. Sims	P. Hollis	Furness Withy & Co., Ltd.
Pacific Liberty	GDFQ	13.4.53	N. Robertson	A. H. Linden, A. R. Dyson, R. Clothier	E. Cunningham	Furness Withy & Co., Ltd.
Pacific Nomad	GCRZ	12.1.53	R. E. Holland	E. H. Gregson, G. W. Whitby, P. M. Cheek	H. Brookfield	Furness Withy & Co., Ltd.
Pacific Reliance	GMJK	20.10.52	H. S. Reavley, O.B.E.	J. H. Clarke, R. L. Heys, A. Voss	C. J. Carter	Furness Withy & Co., Ltd.
Pacific Stronghold	GNSQ	21.4.53	A. H. Cooke	K. Macalister, E. Hall, P. Redford	M. McNaughton	Furness Withy & Co., Ltd.

Pacific Unity	GUAN	27.3.53	E. A. Kemp	A. W. B. Chalmers, W. G. Webb, P. V. McCullough	W. McGrath	Furness Withy & Co., Ltd.
Pacuare	GCNX	24.4.53	J. Purvess	G. Evans, D. Howell, H. MacKinnon	D. W. Sinclair	Elders & Fyffes, Ltd.
Palana	MMBF	23.4.53	I. M. Sinclair	A. K. Langley, M. A. Trenfield, P. W. R. Bull, D. A. Lower	W. C. Mathews	P. & O. Steam Navigation Co.
Pampas	GCDL	25.2.53	R. C. S. Woolley, R.D., R.N.R.	J. A. Martin, R. M. Tysoe, C. C. Walker	G. Ring	Royal Mail Lines, Ltd.
Papanui	GDJW	12.8.52	R. Dell	D. J. Cauldwell, J. Laidlaw, K. J. Field, P. Cresswell	M. Hook-Way	New Zealand Shipping Co., Ltd.
Paparoa	GBCZ	16.3.53	S. R. Harding	R. M. Stephens, F. I. Christall, W. A. French	L. Carter	New Zealand Shipping Co., Ltd.
Paraguay	MAQS	31.7.52	W. S. Thomas	J. Seates, R. Phillips, C. Earl	G. Christie	Royal Mail Lines, Ltd.
Paraguay Star	GTNC	1.4.53	D. R. Macfarlane, D.S.O., O.B.E.	E. A. Davies, I. Haldane, I. Hay	T. Murdoch	Blue Star Line, Ltd.
Pardo	GMNZ	30.3.53	—. Williams	R. E. Fairley, R. H. Greenall, R. J. Kistler, —. Knottage	P. Everett	Royal Mail Lines, Ltd.
Parima	GCLQ	26.3.53	G. S. Grant, R.D., R.N.R.	J. Escolme, M. Wardle, M. Thompson	W. J. Ferguson	Royal Mail Lines, Ltd.
Paringa	MMBD	4.10.52	H. P. Mallet	J. M. Jones, M. O'Connell, P. Everatt	G. Soames	P. & O. Steam Navigation Co.
Parthia	GSWQ	26.8.52	A. B. Fasting	J. C. Nicholson, H. Hurtley, G. H. Griffiths	F. Markham	Cunard Steamship Co., Ltd.
Perim	GCGB	10.12.52	R. J. F. Paice	H. Toon, F. N. Eagle, C. B. Thompson, G. V. Dobbin	F. Groves	P. & O. Steam Navigation Co.
Perthshire	GYWK	9.4.53	T. N. Soane	S. M. Thompson, J. D. Richards, J. M. Templeton	L. C. Cooper	Turnbull Martin & Co., Ltd.
Philomel	GYPV	5.1.53	H. Selmer	C. Sanderson, A. J. Clark, K. B. Phelps	G. Bartram	General Steam Nav. Co., Ltd.
Philosopher	MAQV	18.4.53	D. O. Percy	I. Macaulay, E. Williams	W. C. Doyle	T. & J. Harrison
Pilcomayo	GBZX	18.4.52	F. A. C. Thacker	R. J. Turner, P. C. Davies, B. Gothard	J. Jones	Royal Mail Lines, Ltd.
Pipiriki	GDRQ	1.1.53	H. C. R. Dell	D. Crabtree, J. Miller-Mead, D. Swyer, L. Fancett	M. Dutton	New Zealand Shipping Co., Ltd.
Planter	GZSS	2.5.52	A. Robertson	W. C. Johnston, K. G. Watson, G. F. Smith	R. J. McNeil	T. & J. Harrison
Port Adelaide	MGCG	5.1.52	C. R. Townshend	A. J. Braund, T. Stowell, L. Garnham, P. P. Crumpton	O. Livermore	Port Line, Ltd.
Port Auckland	GWRB	17.1.53	J. G. Lewis, O.B.E.	R. Bostock, P. Heneker, B. Collier	J. S. Skinner	Port Line, Ltd.
Port Brisbane	GWRC	25.4.53	F. W. Bailey	K. W. Jayne, D. J. Evans, P. S. Packwood,	W. H. Parrott	Port Line, Ltd.
Port Jackson	GZKR	12.1.53	S. Langford	J. R. King, J. A. Newbery, E. E. Willis	R. C. Crompton	Port Line, Ltd.
Port Lincoln	GFZK	27.3.53	J. L. Porter	J. A. McManus, G. B. Bonds, J. B. S. Farmer	P. J. McKeon	Port Line, Ltd.
Port Macquarie	MAQY	11.7.52	H. G. B. Pinkney	J. Hammond, P. Gordon, M. Armstrong	B. C. Macorrie	Port Line, Ltd.
Port Napier	GPKD	14.2.53	D. G. Bradley	E. R. Jenkins, —. James, L. Brown	T. Hargrave	Port Line, Ltd.
Port Phillip	MAQZ	9.4.53	L. Copeland	D. Burgess, J. Peek, J. F. O'Dowd, P. Holloway	B. McGovern	Port Line, Ltd.
Port Pirie	GLVQ	24.10.52	F. W. Bailey, M.B.E.	T. Fairbairn, A. M. Crozier, C. Lancaster, H. R. Long	W. Sharkey	Port Line, Ltd.
Port Townsville	MGCV	10.4.53	E. W. R. Young	A. W. Kensett, N. B. Hutton, R. B. Jones	A. Hampshire	Port Line, Ltd.
Port Vindex	MAUW	31.12.52	G. Hazelwood	C. P. C. Gordon, D. E. Bowden, I. H. North, G. Guest	F. M. Sharman	Port Line, Ltd.
Port Wellington	GDNJ	8.1.53	E. J. Syvret	C. J. H. Gorley, I. H. Stewart, G. G. Mooney, W. P. Russell	J. B. French	Port Line, Ltd.
Port Wyndham	GYCW	20.8.52	D. M. Morgan	E. E. Chapman, J. T. Owen, —. Gilling, K. Millar	J. N. Coutts	Port Line, Ltd.
Potaro	GNLJ	19.1.53	W. Tennent	P. Campbell, G. R. Baron, J. Anderson	G. Grosvenor	Royal Mail Lines, Ltd.
Powell	GKJL	8.4.52	D. Cornwell	R. Cardno, J. W. Stewart, M. T. Owen	A. G. Cope	United Whalers, Ltd.
Pretoria Castle	GOAE	22.4.53	G. H. Mayhew	E. Hull, T. Thurgood, R. Deacon	J. Gilbart	Union Castle Mail S.S. Co., Ltd.
Prospector	GJMS		H. T. Wells	E. Sherlock, A. Creer, G. L. Beecroft	P. G. Weston	T. & J. Harrison

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Radley	GZZG	15.1.53	E. H. Wainford	N. F. Lloyd, A. H. Blair, T. A. Gil	H. Wilkinson	Stephens, Sutton Ltd.
Rakaia	GFGW	27.10.52	C. J. Cordran, R.N.R.	R. E. Cooke, S. G. Bevis, T. Bennett, B. Whybrow	P. Broome	New Zealand Shipping Co., Ltd.
Ramore Head	MAXX	1.10.52	W. A. Haddock, O.B.E.	J. E. Willison, R. Harris, E. G. Davey	F. Murrant	G. Heyn & Sons, Ltd.
Rangitane	GDBV	12.2.53	T. L. Maltby	E. Newing, H. Owen, P. Moulton, B. Linklater, J. Baxter	C. L. Lambe	New Zealand Shipping Co., Ltd.
Rangitata	GSZN	2.3.53	G. Kinnell, O.B.E.	J. Masson, P. Ogden, R.N.R., T. Wadie, L. B. West, R.N.R.	J. Grant	New Zealand Shipping Co., Ltd.
Rangitiki	GSXW	22.4.53	A. E. Lettington, O.B.E., D.F.C.	A. W. S. Cripps, R. Allan, A. C. Rollinson, R. Kinloch, J. Gaire	J. D. Charters	New Zealand Shipping Co., Ltd.
Rangitoto	GLMV	8.1.53	B. Evans	A. Finch, R. Baker, J. Marshall, P. Lay	G. A. Parker	New Zealand Shipping Co., Ltd.
Regent Hawk	GMND	20.4.53	G. H. Hobson	Z. Wojewodzki, R. Armstrong, T. Hemingway	R. W. Jones	Regent Petroleum Tankship Co., Ltd.
Reina del Pacifico	GMPS	16.12.52	J. Whitehouse	P. L. Whitaker, R. Lewis, A. Maclean, P. Potts	J. Butler	Pacific Steam Nav. Co.
Retriever (C/S)	MRYW		C. C. R. Evans	W. T. Goodall, G. H. C. Reynolds, K. Matheson, J. K. Cook	J. Grant	Cable & Wireless, Ltd.
Rhodesia Star	GUAX	30.1.53	G. L. Evans, O.B.E.	J. Parker, P. Brecknell, P. Davis	W. Roe	Blue Star Line, Ltd.
Rialto	GBLV	30.6.52	H. Goodman	M. Taylor, F. Lewis, F. Rouse	C. Child	Ellerman's Wilson Line, Ltd.
Richmond Castle	GCSP	13.4.53	A. E. F. Payne	P. Eckford, J. Taylor, J. Francis	C. G. Clifford	Union Castle Mail S.S. Co., Ltd.
Rippingham Grange	GIGP	2.3.53	R. Owen	G. Spong, P. Walper, K. Walker	M. Sheaham	Houlder Bros. & Co., Ltd.
Rochester Castle	GZQF	2.12.52	J. P. Aplin	J. H. Hall, J. Craze, T. Miller	S. Gobbi	Union Castle Mail S.S. Co., Ltd.
Roonagh Head	GNTN	21.2.53	U. Kennedy	J. McCormick, J. James, —. Greig	B. P. Lewis	G. Heyn & Sons, Ltd.
Roslin Castle	GYJZ	25.2.53	C. E. Lorrains	J. P. Muir, —. MacKinley, —. Oates	—. Kerr	Union Castle Mail S.S. Co., Ltd.
Rowallan Castle	GDFT	4.3.53	D. Sowden	M. C. Long, N. R. Knowles, J. Buckland	J. Hilton	Union Castle Mail S.S. Co., Ltd.
Roxburgh Castle	GBGS	18.7.52	G. E. Stephenson	G. W. John, Q. Beadon, M. Oates	F. Broadhurst	Union Castle Mail S.S. Co., Ltd.
Royal Star	MARJ	21.4.53	A. H. Dare	D. A. Clulow, J. Owen, M. Phebey	J. Stewart	Blue Star Line, Ltd.
Ruahine	GKSY	18.3.53	A. I. Robertson, C.B., R.D., Cmde. R.N.R.	J. Mason, J. Cosker, J. F. Hollier, B. Smith	J. Heath	New Zealand Shipping Co., Ltd.
Runic	GGCS	12.3.53	L. H. Edmeads	A. Newman, P. H. Carden, W. A. Hutchison, J. A. Wooler	A. McMurray	Shaw, Savill & Albion Co., Ltd.
Sacramento	GKCN	16.4.53	J. Robinson, M.B.E.	L. Gibson, P. W. Lawson, T. Fugill	A. L. Hall	Ellerman's Wilson Line, Ltd.
Salacia	GZRN	22.4.53	R. McNie	J. McCully, G. Manson, W. G. McKean	J. Jardine	Donaldson Bros. & Black, Ltd.
Salamanca	GLSG	27.1.53	D. W. Hutchinson	R. B. Bryant, E. Swan, A. D. Hutchinson	T. Fitzgerald	Pacific Steam Nav. Co.
Salaverry	GBLQ	7.11.51	A. Lyall	A. C. Gordon, J. H. Allenby, T. Wilcockson	C. Weekes	Pacific Steam Nav. Co.
Salinas	GLLK	15.1.53	T. J. Naylor	J. T. Bruse, R. K. Thomas, H. McNearnie	T. E. Cornwall	Pacific Steam Nav. Co.
Salween	GFFN	13.4.53	H. V. V. Poole	T. F. Fields, J. Morgan, K. Brooks, D. McKillop	J. H. Brown	P. Henderson & Co.
Samanco	MARQ	8.12.52	J. Williams	C. Pringle, P. D. O'Driscoll, R. G. Pass	J. Smallwood	Pacific Steam Nav. Co.
Samaria	GJCF	20.2.53	J. Crosbie-Dawson, D.S.C., R.D., R.N.R.	D. Calvert, R. J. Manson, G. Buckley	E. Bishop	Cunard Steamship Co., Ltd.
San Adolfo	GYKK	26.2.52	S. Miller, O.B.E.	A. Grunson, J. Munday, A. Hiking	J. Forrester	Eagle Oil & Shipping Co., Ltd.
San Cirilo	GZMR	5.11.52	G. R. Pearson	D. J. Powell, R. Errington	G. M. Leighton	Eagle Oil & Shipping Co., Ltd.
San Felix	GFJZ	6.11.52	A. P. Shaw	B. V. Orange, R. Auric, J. Batey	A. McGillivray	Eagle Oil & Shipping Co., Ltd.
San Velino	GCNY	16.4.53	H. R. Shotton	W. Richardson, A. Rylett, E. C. Donnell	J. Couchman	Eagle Oil & Shipping Co., Ltd.
San Veronico	MASQ	2.2.53	W. W. Wigham	B. J. Hamilton, D. L. Newton, P. W. Hodges	P. M. Motley	Eagle Oil & Shipping Co., Ltd.
San Vulfrano	MASR	25.3.53	L. Mays	J. G. Hughes, K. Spenser, J. E. Buck	V. Rowe	Eagle Oil & Shipping Co., Ltd.
Sansu	GQQN	9.4.53	W. McC. C. Keating	—. Doran, —. Oates, —. Rolands	D. Graves	Elder Dempster Lines, Ltd.

Santander	GBNR	9.4.53	G. H. Rice	E. Gowland, A. Lang, W. A. E. Johnston	W. Williams	Pacific Steam Nav. Co.
Sarmiento	MARW	24.2.53	G. B. Wardale	F. Nuttall, E. J. Pepper, R. J. Clare	J. Murray	Pacific Steam Nav. Co.
Saxon Star	MARX	10.12.52	R. J. C. McDonald	J. King, J. Bottwood, L. Evans	W. Thursby	Blue Star Line, Ltd.
Scythia	GDYP	8.11.52	C. S. Williams	I. K. Bryce, T. Grinrod, T. Ridley	S. R. Brown	Cunard Steamship Co., Ltd.
Selector	MARZ	25.4.53	R. L. Williams	R. Patmore, K. Heaps, R. P. Jones, J. H. Burton	M. Healy	T. & J. Harrison
Settler	GTTX	20.11.52	R. F. Phillips	R. J. Turnbull, G. W. McGuinness, C. Wilde	J. J. Blake	T. & J. Harrison
Shielbank	GDPZ	11.2.52	W. Ford	N. Haliday, C. H. Drummond, B. E. Watson	W. C. Arscott	Andrew Weir & Co., Ltd.
Silveroak	GCQR	31.12.52	J. Leask	I. Robertson, F. Hewett, C. Goddard, D. Walker	D. Stewart	Silver Line, Ltd.
Silversandal	GSFQ	16.4.53	C. J. Metcalf	R. F. McNamara, D. Morrison, N. Tuddenham	E. Williams	Silver Line, Ltd.
Silverwalnut	GSFT	7.6.52	C. J. Metcalf	J. Meadows, M. Bingham, M. H. F. Smith	A. Wake	Silver Line, Ltd.
Sneaton	GDBS	5.1.53	W. Armstrong	E. Wilson, M. Turtand, W. Atkinson, T. Ellerby	O. Mahoney	Headlam & Son
Socotra	MASC	8.4.53	W. T. Banks	D. O. Williams, C. B. Cooke, —. Norris, D. M. Reynolds	H. J. Camp	P. & O. Steam Navigation Co.
Somerset	GJMN	9.4.53	H. R. M. Smith	J. Hannah, N. Selwood, S. Birch	T. Mason	Federal Steam Nav. Co., Ltd.
South Africa Star	GUAU	24.2.53	R. M. T. Jones	F. P. McGuicken, H. A. Sproul-Cran, G. Williams	P. M. Hacker	Blue Star Line, Ltd.
Southern Atlantic	GBLY	22.7.52	J. O. Bowie	A. D. Petrie, T. Storey, G. Vauchan	P. Curzon	Chr. Salvesen & Co.
Southern Collins	MASE	24.7.52	L. Robertson	A. Aitken, R. Hutcheon, A. Smith	J. Edmond	Chr. Salvesen & Co.
Southern Garden	MASF	24.10.52	W. J. Swanson	S. McGillivray, W. Scott, A. Smith	G. Campbell	Chr. Salvesen & Co.
Southern Harvester	GFZJ	21.4.52	T. Strandskog	H. Solberg, M. Scott, P. Holton	J. Turnbull	Chr. Salvesen & Co.
Southern Opal	MASG	27.7.51	A. F. Baikie	G. Kinsella, G. Clark, A. Nicholson	T. Johnson	Chr. Salvesen & Co.
Southern Venturer	GNNM	25.4.52	H. Myhre	J. Balfour, A. Harkness, K. Snerkestad, J. Holtan	J. MacMorran	Chr. Salvesen & Co.
Sovac	GDDV	26.3.53	H. W. Wilcox	R. M. Johnston, J. Pawlowicz, S. R. Richards	R. M. Hughes	Stanfuel Supply Co.
Specialist	GCYF	27.3.53	D. Wolstenholme	W. Tinkler, W. E. Hinde, T. S. Maddox	S. Scannel	T. & J. Harrison
Stirling Castle	GYPX	15.4.53	J. Trayner	K. J. Barry, A. Blowers, R. G. Goddard	W. Brown	Union Castle Mail S.S. Co., Ltd.
Stirlingshire	GCQD	31.1.52	E. W. Jenkins	T. R. Halliday, D. M. Geddes, G. M. Silvers	N. J. Braedon	Turnbull Martin & Co., Ltd.
Strathaird	GRSX	24.2.53	D. G. Baillie	P. Love, P. Wiseman, J. Woollen	H. Jardine	P. & O. Steam Nav. Co.
Stratheden	GDGT	24.10.52	G. C. Forrest, R.D., R.N.R.	D. L. Smith, J. R. K. Neale, D. C. Barnett	H. S. Horn	P. & O. Steam Nav. Co.
Strathmore	GYMS	11.7.52	R. E. Cowell, R.D., Capt. R.N.R.	D. Shipp, M. D. Penny, J. P. Crighton, —. Blackburn	J. P. Carey	P. & O. Steam Nav. Co.
Strathnaver	GRPZ	12.3.53	C. E. Pollitt	P. J. Passmore, P. Aspinal, P. Jackson, D. W. Stock	W. Miller	P. & O. Steam Nav. Co.
Struan	MASJ	17.1.52	M. Polson	D. Pollock, G. Reid, W. Murray	W. S. Hayes	Chr. Salvesen & Co.
Suffolk	GQQS	16.10.52	F. Pover	C. T. Rowlands, P. Field, N. Pickering	H. Hare	Federal Steam Nav. Co., Ltd.
Sunrover	MSLB	19.1.53	A. Maclelland	T. Horne, J. Boyter, D. McBain, M. Birchall	J. Dawson	Clunies Shipping Co., Ltd.
Sussex	MAEF	7.1.53	C. P. Robinson	J. Witchell, J. A. North, E. White	E. Howarth	Federal Steam Nav. Co., Ltd.
Sussex Trader	GNQC	19.1.53	H. Young	D. Barbour, H. P. Ellison, P. G. Mist	C. Eyre	Trader Navigation Co., Ltd.
Sutherland	GBYG	3.1.53	R. W. Nicolson	E. F. Smith, D. Campbell, F. Bourne	J. Harris	B. J. Sutherland & Co., Ltd.
Sydney Star	MKSM	25.3.53	T. F. MacDonald, O.B.E.	F. E. Thomas, C. P. Davey, D. L. Burt	D. Whitehead	Blue Star Line, Ltd.
Tagelus	GBMG		G. W. Sharpe	J. Gemmell, A. F. Boniwell, J. H. Mills	F. E. Page	Anglo-Saxon Petroleum Co., Ltd.
Tamaroa	GFWX	4.2.52	T. H. Davies	C. D. Craig, C. Knox, W. Newport, I. Cameron	D. MacCrae	Shaw, Savill & Albion Co., Ltd.
Tamele	GCBF	20.1.53	H. Flowerdew	D. McLure, D. T. Daniel, —. Parker	A. Allen	Elder Dempster Lines, Ltd.
Tarkwa	MASU	4.12.52	G. D. Simpson	J. Sanderson, A. Howe, W. Orr	A. Cummins	Elder Dempster Lines, Ltd.

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Tasmania Star	GKPC	17.12.52	G. Owen, O.B.E., R.D., R.N.R.	A. Morrison, E. Dyer, W. Andrew	S. Roberts	Blue Star Line, Ltd.
Tasso	GLMR	4.9.51	F. Mason	R. Abbott, J. Bradley, S. Wilkinson	I. Lawrie	Ellerman's Wilson Line, Ltd.
Tectus	GBMJ	6.11.52	F. Leask	R. G. Taylor, M. Carr, M. P. Fraser	B. Richards	Anglo-Saxon Petroleum Co., Ltd.
Tekoa	GJFQ	27.1.53	J. D. Bennett	J. Heron, M. R. Forcer, R. B. Hood, B. Meads	T. M. Jones	New Zealand Shipping Co., Ltd.
Telemachus	GBLB	9.4.53	S. G. Elms	D. Main, D. R. Howard, D. E. Easey, J. H. Dickinson	W. S. Young	A. Holt & Co.
Tenagodus	GDLZ		H. G. Watkins, M.B.E.	W. Irvine, E. Bennett, G. T. Sowter, A. M. Riddell		Anglo-Saxon Petroleum Co., Ltd.
Teviot	MASX	9.4.53	H. Davies	K. Bolland, W. M. Wheatland, G. Chamberlain	H. Tomlinson	Royal Mail Lines, Ltd.
Thalamus	GDSV		J. Kell	J. Forbes, S. W. Dean, A. Rousson		Anglo-Saxon Petroleum Co., Ltd.
Theliconus	GBMT	24.1.53	G. N. Jenkins	B. Webster, A. McLean, P. Lee	W. Holbrook	Anglo-Saxon Petroleum Co., Ltd.
Thule	GCBL	22.5.50	S. Anderson	S. Farmer, R. Dovik	E. Bergan	Hector Whaling, Ltd.
Timaru Star	GKKM	27.4.53	H. W. McNeil	T. E. Harris, W. Pitcher, T. Ripley, C. Leatham	G. Sangster	Blue Star Line, Ltd.
Tinto	GBYT	31.3.53	S. H. Bennett, M.B.E.	H. Ledger, C. Everingham, J. W. Guilliat	G. S. Dunn	Ellerman's Wilson Line, Ltd.
Tongariro	GLFZ	11.2.53	J. D. Guyler	R. G. Blakey, A. B. Stalker, J. W. Ekins, B. Gulson	D. J. James	New Zealand Shipping Co., Ltd.
Torr Head	GZPW	2.4.53	M. Kennedy	W. Greig, L. L. Seaton, A. G. Agnew	I. I. Humphries	G. Heyn & Sons, Ltd.
Tregenna	GBPM	1.1.53	C. Lloyd Collings, O.B.E.	P. T. Dennison, A. Millar, D. Ball	G. Stocks	Hain S.S. Co., Ltd.
Trelevan	GBPQ	5.1.53	S. K. Hawken	J. M. Downard, B. W. George, R. N. Denby	M. W. McRiley	Hain S.S. Co., Ltd.
Trelyon	GBPP	20.10.52	F. J. Cornish, M.B.E.	H. Gravell, L. Edwards, D. Alavoine	T. H. Murrin	Hain S.S. Co., Ltd.
Trevaylor	GCKG	15.1.53	I. M. Price	V. Wise, F. Coleman, L. J. Cooper	W. H. Major	Hain S.S. Co., Ltd.
Tribesman	GBNZ	13.12.52	W. Baker	T. Wilson, A. M. Overton	P. Snaith	T. & J. Harrison
Tribulus	GFJS	27.2.53	R. Chandler	P. M. L. Wenham, N. W. Bunsdon, J. O'Kane	G. M. Pott	Anglo-Saxon Petroleum Co., Ltd.
Trochiscus	GFKB	17.4.53	G. Taylor, M.B.E.	G. T. Evans, A. Scott, E. O'Connell	C. D. Boudren	Anglo-Saxon Petroleum Co., Ltd.
Tweed	GBRP	24.1.52	A. J. C. Barff	C. C. Cowley, P. J. Robinson, R. J. Luke	J. A. Reilly	Royal Mail Lines, Ltd.
Twickenham	GNDC	9.4.53	J. A. Tully	H. S. Patterson, S. E. Hooper, W. J. S. Flett	J. Goddard	Watts, Watts & Co., Ltd.
Umtali	GYWB	10.4.53	F. E. J. O'Hea	R. J. Bizzey, J. G. Jenn, J. H. Butcher	P. V. Richmond	Bullard, King & Co., Ltd.
Umtata	GDQF	29.1.53	D. L. Weston	R. Patterson, J. Parker, J. Campbell, G. B. Dyke	G. J. Claret	Bullard, King & Co., Ltd.
Umzinto	GIFQ	9.1.53	R. Harber	D. Breckon, F. W. Bush, J. C. Campbell	M. Guy	Bullard, King & Co., Ltd.
Vandalia	GCRQ	11.4.53	G. S. Evans	R. D. Hardman, A. P. Whorrall, G. B. Bowyer	G. Morris	Cunard Steamship Co., Ltd.
Vardulia	GCFW	17.5.52	A. N. Sargent, O.B.E., R.D., R.N.R.	J. King, D. Steff, E. Willis	—. McTurk	Cunard Steamship Co., Ltd.
Vestra	MNNB	6.3.52	D. S. Archibald	H. M. Third, D. C. White, H. C. Cuner	D. C. White	J. T. Salveson & Co.
Volo	GPCJ	30.3.53	A. Morrill	A. Backhouse, F. A. Frith, R. Howlett	G. Williams	Ellerman's Wilson Line, Ltd.
Waipawa	GWXQ	24.2.53	A. E. Warren	I. McIntosh, F. Sangster, B. Cavendish-Tribe	J. Houghney	Shaw, Savill & Albion Co., Ltd.
Wairangi	MATX	12.3.53	R. S. Mackenzie	M. D. Johnstone, D. Aberdeen, J. W. Walker	N. V. Hurrell	Shaw, Savill & Albion Co., Ltd.
Waiwera	GBJB	3.2.53	G. Campbell	J. Mudd, —. Chandler, W. Newport, R. Valvona	M. Downie	Shaw, Savill & Albion Co., Ltd.

Walvis Bay	GKBZ	25.2.52	H. Gentles	J. N. Neck, T. Hastings, J. W. Curry	J. T. MacDonald	Sir R. Ropner & Co., Ltd.
Wanstead	GFLS	22.12.52	—. McKenzie	A. L. Rigden, M. F. Diggens, —. Crump, —. Anderson	W. Cameron	Watts, Watts & Co., Ltd.
Warkworth	MALF	22.4.53	N. Thompson	H. Gunton, —. Ray, H. Hyslop	J. Cooper	R. S. Dalgliesh, Ltd.
Warwick Castle	GRRJ	25.10.52	L. H. Farrow	—. Taylor, A. George, N. Upham	G. Shaw	Union Castle Mail S.S. Co., Ltd.
Wendover	GFML	31.7.52	W. Donald	J. Shearer, D. J. Vincent, W. Miller, M. Court	N. Ridley	Watts, Watts & Co., Ltd.
Winchester Castle	GTPZ	11.4.53	G. W. B. Lloyd	A. D. Mildren, J. Canner, P. Truman	R. Brew	Union Castle Mail S.S. Co., Ltd.
Worcestershire	GFZM	20.4.53	F. C. Brooks	R. Weir, J. Longrigg, J. Morris	W. Fletcher	Bibby Bros. & Co.
Yoma	GLPN	14.4.53	S. Thomson	S. B. Hamilton, W. Kendall, W. Losko-czynsk	W. Allen	P. Henderson & Co.
**Queen of Bermuda*	GZKF		L. F. Banyard, O.B.E.	N. E. James	H. Stennett	Furness Withy & Co.. Ltd.

*This ship has been recruited by the Bermuda Meteorological Service.

Supplementary Ships

Name of Vessel	Call Sign	Last Return Received	Captain	Observing Officers	Senior Radio Officer	Owners/Managers
Alert (C/S)	GCBM	18.4.53	R. H. J. Wallis	R. M. Tuckwell, J. P. Ruddock, D. Cussor	J. Morrison	H.M. Postmaster-General
Ariel (C/S)	GMDY		C. M. G. Evans, M.B.E.	E. J. Evans, F. Gernett, A. V. Paines, —. Chisholm	—. Cunningham	H.M. Postmaster-General
Bellerby	MQJF	11.7.52	S. Richards	N. Grant, R. H. Anderson, E. Noble	J. Isherwood	Ropner Shipping Co., Ltd.
Blairclova	GLLG	14.10.52	J. McVean	K. Muir, H. Towers, A. Findlay	E. Yard	Geo. Nisbet & Co.
Cape Breton	GLXG	2.2.53	J. Smith	—. Miller, W. R. Pilling, A. D. Chappell		C. T. Bowring & Co., Ltd.
Cape Howe	GCYP	18.9.52	R. Reid	T. R. Baker, W. J. Clarke, M. Symon	V. Dalton	Lyle Shipping Co., Ltd.
Circassia	GZMD	22.12.52	J. McG. Brown	J. Ballantyne, A. McKendrick, R. L. Crawford, D. B. Watt	J. McDonald	Anchor Line, Ltd.
Clan Alpine	GIFF	20.4.53	L. Pogson	G. W. Potter, M. Turner, R. W. D. Kenyon	R. Richie	Cayzer Irvine & Co., Ltd.
Clan Lamont	GTTD	18.4.53	J. E. Townrow	E. A. Cameron, R. R. Baxter, J. J. Grigor, D. Stobbart	R. G. Davies	Cayzer Irvine & Co., Ltd.
Clan Macbrayne	MAQA	9.4.53	J. P. Dunphy	G. W. Wilson, D. L. Muir, G. S. Gowans	D. Munroe	Cayzer Irvine & Co., Ltd.
Coptic	GSND	14.4.53	G. Sainsbury	J. Gunning, B. J. Pratt, G. Main, D. Logan	W. Beedie	Shaw, Savill & Albion Co., Ltd.
Dartmoor	GFQT	22.4.53	J. O. Roberts	R. B. Crosbie, J. R. Jenkins	E. G. McKay	Walter Runciman & Co., Ltd.
Devon City	MBKL	3.10.52	S. Leebetter	D. Jones, A. Passmore, D. Baker	J. Phillips	Sir William Reardon Smith & Sons, Ltd.
Eastern City	GBRB	23.3.53	J. H. Thornhill	J. R. Harris, A. H. Davies, T. C. Rooney	D. W. Ayliffe	Sir William Reardon Smith & Sons, Ltd.
Empire Trooper	GLXJ	24.11.52	R. H. A. Bond, O.B.E.	F. G. Hill, D. Calvert, E. Pickles	J. Reardon	British India Steam Nav. Co., Ltd.
Forthbank	GJQX	3.11.52	D. A. Reid	P. Mitchell, G. W. Hargrieves, G. I. Williams	S. McWhirter	Andrew Weir & Co., Ltd.
Greenland	GCLJ	6.2.53	—. Milligan	—. Ross, G. Buist, J. Duguid	J. Sherston	Currie Line, Ltd.
Harpalion	GFFX	7.8.52	—. Phelps	C. C. McCarthy, G. F. B. Pannett, H. Loveday	R. P. John	J. & C. Harrison & Co., Ltd.

Hendonhall	GBTX		H. W. Smith	J. Prefect, M. Proctor, J. Gay	G. Rushton	West Hartlepool Steam Nav. Co.
Hesione	GUGJ	11.3.53	M. J. Lewis	S. St. C. Shaw, J. A. Lionnet, J. S. Catterall	N. Burnitt	Houston Line (London), Ltd.
Hudson Deep	MPCR	13.4.53	J. Gibbons, D.S.C.	K. R. Mackenzie, J. Richardson, J. Tollett	P. H. Cottrill	Hudson S.S. Co., Ltd.
Hudson Firth	GDKM	16.4.53	E. W. Pybus	M. R. Uminski, L. Thompson, K. W. Keithley	E. J. Standley	Hudson S.S. Co., Ltd.
Iceland	GFFT	1.8.52	J. Hawk-Shaw	A. Smith, —. Piper, T. Archibald, D. Foster	P. McGowan	Currie Line, Ltd.
Kirriemoor	GYJW		J. Howie	T. Dixon, T. Graham		W. Runciman & Co., Ltd.
Leicestershire	GDBL	23.4.53	A. Thomson	S. C. Montieth, J. Harwood, J. A. Robinson	J. E. Ellmsworth	British India Steam Nav. Co., Ltd.
Letchworth	MAOV		W. F. Graves	R. Preston, —. Slade		R. S. Dalgliesh, Ltd.
Linga	GLCK		A. G. E. Short, O.B.E.	E. J. Davis, S. C. B. Hickman, D.S.C., R.D., R.N.R., J. Williams		Anglo-Saxon Petroleum Co., Ltd.
Llangibby Castle	GPLV	30.3.53	F. R. Pope, R.D., R.N.R.	K. H. Williams, —. Milton, —. Armstrong —. Attwood	—. Peake	Union Castle Mail S.S. Co., Ltd.
Marie Louise Mackay (C/S)	GDNP	9.4.53	L. P. Denny	W. D. Harper, L. R. Cook, T. Wilson	K. Kenny	Commercial Cable Co.
Markab	GCVT	9.10.52	C. Christensen	F. Wilkins, H. Kurth, P. Essman	A. Cochrane	Phocean Ship Agency, Ltd.
Marna	MLPK	21.2.53	A. Goodlad	A. Nicolson, J. Ferguson		Chr. Salvesen & Co.
Mulberry Hill	MAKQ	27.2.53	J. Campbell	K. G. Carten, W. E. R. Whiting, D. W. T. Bird, M. Anderson	P. Rower	Counties Ship Management Co. Ltd.
Nicania	GIGJ		A. E. Price	D. S. Nicol, R. E. P. Morgan, R. A. Wyncott		Anglo-Saxon Petroleum Co., Ltd.
Port Alma	GSTN	13.12.52	A. Brown	I. H. North, W. M. G. Lloyd, P. R. Jones G. K. Cooke	G. S. Cavaye	Port Line, Ltd.
Port Dunedin	GLCJ	13.3.53	L. J. Skailes	B. B. Skrimshire, G. A. Blundell, C. Rhodes, —. Johnson	A. Webster	Port Line, Ltd.
Port Fairy	GSTP	15.7.52	C. A. Hodson	R. C. W. Marr, M. L. Mitchell, M. Lee	T. Herriotts	Port Line, Ltd.
Port Victor	MSWK	4.3.53	D. T. N. Lawrey	A. Wardell, M. S. Box, P. J. Hannan	D. McNeil	Port Line, Ltd.
Queen Maud	MAJM	21.3.53	J. Adam	J. Konton, D. Findlayson, P. Austin	P. Harris	Thos. Dunlop & Sons, Ltd.
Rembrandt	GPFD	28.4.53	B. F. R. Thomas	C. H. Phillips, C. Frith, J. Parsloe	H. Doherty	Bolton Steam Shipping Co., Ltd.
Rookwood	GPSN		A. Dover	S. Umpleby, J. Dedman, F. Turnbull	W. Meeks	Wm. France, Fenwick & Co., Ltd.
Royal Emblem	GDSC		S. Moorhead	J. N. Meeks		Hall Bros. S.S. Co., Ltd.
Table Bay	MFTV	18.4.53	A. N. Cabot	C. F. Hicks, J. Gair, A. M. Ewing	G. Greenfield	Lyle Shipping Co., Ltd.
Tarantia	GIGS	13.4.53	A. J. F. Colquhoun	J. S. Watson, T. L. Langlands, G. Davidson	H. Williams	Anchor Line, Ltd.
Trelissick	GBPR	10.2.53	M. S. Sadler	D. D. Tattoo, J. C. Dalgleish, J. L. Hazell	A. Thompson	Hain S.S. Co., Ltd.
Treworlas	MATL	19.3.53	W. T. Evans	P. M. Sadler, L. Watson, —. Griffiths	B. R. Reid	Hain S.S. Co., Ltd.
Tronda	MMLX	15.10.51	R. J. Sinclair	R. Angus, K. Chow		Chr. Salvesen & Co.
Woodland	MTCT	17.5.52	C. M. Webster	D. Mackenzie, T. E. Constantine, G. Cross	G. Tremayne	Currie Line, Ltd.

MARID SHIPS

The following is a list of ships voluntarily observing and reporting sea temperatures from coastal waters of Great Britain. Captains are requested to point out any errors or omissions in the list.

Name of Ship	Call Sign	Captain	Owners/Managers
Actuality	GPPF	D. O'Leary	F. T. Everard & Sons, Ltd.
Amsterdam	MFBP	C. R. Baxter, D.S.C.	British Transport Commission
Angelo	GQFY	S. N. Stokes	Ellerman's Wilson Line, Ltd.
Ariosto	GKPW	W. C. Gill	Ellerman's Wilson Line, Ltd.
Atlantic Coast	GWSY	C. A. Hopkins	Coast Lines, Ltd.
Barra Head	MPQZ	W. Flett	A. F. Henry & MacGregor, Ltd.
Beauly	MLZK	J. McGugan	William Sloan & Co.
Belhaven	MNXZ	H. D. Brown	London & Edinburgh Shipping Co., Ltd.
Belravock	MKGV	T. Wallace	London & Edinburgh Shipping Co., Ltd.
Belvina	MLZF	W. Fisher	London & Edinburgh Shipping Co., Ltd.
British Coast	GWQX	R. E. Holt	Coast Lines, Ltd.
British Scout	GJKD	W. G. Dunbar	British Tanker Co., Ltd.
Caledonian Coast	GKXF	J. Webber, M.B.E.	Coast Lines, Ltd.
Cambria	GBKT	W. E. Meade	British Transport Commission
Clupea	GOAJ	J. Jappy	Fishery Board for Scotland
Corfen	GDJX	F. S. Granger	Wm. Cory & Son, Ltd.
Corfleet	GWTD	A. G. Waller	Wm. Cory & Son, Ltd.
Corfoss	MAHX	T. Ellis	Wm. Cory & Son, Ltd.
Cormain	MAHT	R. B. Armstrong	Wm. Cory & Son, Ltd.
Cormead	GDBX	T. Slack	Wm. Cory & Son, Ltd.
Cormist	GDVT	R. J. Barrow	Wm. Cory & Son, Ltd.
Cormoat	GLKV	J. U. Hansen	Wm. Cory & Son, Ltd.
Cormull	MAHS	E. R. W. Allen	Wm. Cory & Son, Ltd.
Corncrake	MJKL	K. W. Carmalt	General Steam Nav. Co., Ltd.
Crane	MMCS	K. Nicholls	General Steam Nav. Co., Ltd.
Drake	MMYC	R. Langley	General Steam Nav. Co., Ltd.
Duke of Argyll	GNVX	A. E. Willmott, D.S.C., R.D., R.N.R.	British Transport Commission
Duke of Lancaster	GCPQ	E. B. Serjeant	British Transport Commission
Duke of Rothesay	GNVL	H. Thompson	British Transport Commission
Eildon	MLZL	J. Little	G. Gibson & Co., Ltd.
Empire Cedric	GRSC	W. H. Laws	Ministry of Transport
Empire Gaelic	MAVR	H. T. Green	Ministry of Transport
Explorer	MRCZ	G. B. McLaren	Scottish Home Department
Falcon	MNXL	S. W. Develin	General Steam Nav. Co., Ltd.
Fidra	MKQQ	T. Henry	Scottish Navigation Co., Ltd.
Golden Dawn	MLZV	A. Adamson, M.B.E., R.D., R.N.R.	The Captain
Great Western	GWRD	B. H. Mendus	British Transport Commission
Grebe	MAEY	E. C. Painter, D.S.C.	General Steam Nav. Co., Ltd.
Guernsey Coast	MANS	H. Keilit	British Channel Islands Shipping Co., Ltd.
Harrogate	MNDB	J. H. Walters	Wilson's & N.E. Railway Shipping Co., Ltd.
Hibernia	MBMT	R. Woodall	British Transport Commission
Hibernian Coast	GKXC	G. H. Clark, M.B.E.	Coast Lines, Ltd.
Highwood	MLQQ	J. Copeland	High Hook Shipping Co., Ltd.
Horsa	MPFJ	D. Dickson	Currie Line, Ltd.
Isle of Guernsey	GQYJ	F. Breudlay	British Transport Commission
Isle of Jersey	GRBQ	A. Light	British Transport Commission
Isle of Sark	GTSR	G. Pierce	British Transport Commission
Jura	MARU	L. J. Blanche	Admiral Shipping Co., Ltd.
Kinnaird Head	GCSQ	J. Grant	A. F. Henry & MacGregor, Ltd.
London Merchant	MBRZ	C. A. Piper	London Scottish Lines, Ltd.
Marine Craft Unit (R.A.F.) No. 1102		Flt.-Lt. D. A. Koster	Royal Air Force
Melrose	MCFD	G. Simpson	Geo. Gibson & Co., Ltd.
Melrose Abbey	GSYW	J. Laverack	Hull & Netherlands S.S. Co., Ltd.
Minna	GKPS	T. Mather	Fishery Board for Scotland
Moray Coast	MKDL	O. Evans	Coast Lines, Ltd.
Narva	GQFP	R. J. McNinch	Glen & Co. (Scottish Nav. Co., Ltd)
Ocean Coast	GYMP	J. Richardson	Coast Lines, Ltd.
Orsa	MATZ	S. Young	Clydesdale Shipowners Co., Ltd.
Peregrine	GIGM	J. Davies	General Steam Nav. Co., Ltd.
Princess Maud	GWRT	W. E. Meade	British Transport Commission
Rattray Head	GCBR	J. Graham	A. F. Henry & McGregor, Ltd.
Rora Head	MKVB	A. F. Ramsay	N. of Scotland & Ork. & Shet. S.N. Co., Ltd.
Runa	GFSW	J. Gilfillan	Clydesdale Shipowners Co., Ltd.
St. Abbs Head	GODU	P. Stickle	A. F. Henry & MacGregor & Co., Ltd.
St. Clair	MMFX	T. Gifford	N. of Scotland & Ork. & Shet. S.N. Co., Ltd.
St. Clement	GRGM	W. J. Ramsay	N. of Scotland & Ork. & Shet. S.N. Co., Ltd.
St. Helier	GLBT	R. Pitman, D.S.C.	British Transport Commission
St. Julien	GLBV	L. J. Richardson	British Transport Commission
St. Magnus	GFYK	W. G. Stout	N. of Scotland & Ork. & Shet. S.N. Co., Ltd
St. Ninian	GJBB	A. M. Dundas	N. of Scotland & Ork. & Shet. S.N. Co., Ltd.
Selby	MLFT	J. Collier	Wilson's & N.E. Railway Shipping Co., Ltd.
Slieve Bawn	MQCC	W. N. Greenwood	British Transport Commission
Slieve Bernagh	MLNL	J. Irwin	British Transport Commission
Slieve Bloom	MQDD	E. A. Horspool	British Transport Commission
Slieve Donard	MQCQ	W. G. Roberts	British Transport Commission
Slieve League	MQCM	E. A. Horspool	British Transport Commission

MARID SHIPS—*contd.*

Name of Ship	Call Sign	Captain	Owners/Managers
Slieve More	MQBM	C. A. Winckle	British Transport Commission
Southern Coast	MASD	G. Goldman	Coast Lines, Ltd.
Thelma	MBKK	F. Fairweather	Clydesdale Shipowners Co., Ltd.
Truro	GJTQ	D. A. Stokes	Ellerman's Wilson Line, Ltd.
Vanellus	GDVW	J. E. Green	British & Continental S.S. Co., Ltd.
Vienna	GTBR	A. Pearson Sutton	Ministry of Transport

TRAWLERS

The following is a list of trawlers voluntarily observing and reporting those elements of the weather which do not entail the use of any meteorological instruments.

Name of Trawler	Call Sign	Master	Owners/Managers
Admiral Sir John Lawford	GMVW	N. Jinks	Iago Steam Trawler Co.
Boston Typhoon	MTDR	J. Betty	Boston Deep Sea Fishing Co.
Carella	GRRV	T. Harris	Dinas Steam Trawling Co., Ltd.
Ella Hewett	GQMG	G. Elliott	Hewett Fishing Co., Ltd.
Ernest Holt	GFXD	H. J. Aldiss	Ministry of Agriculture and Fisheries
Frobisher	GTRN	T. Sutton	Short Blue Fishing Co., Ltd.
Lammermuir	MFCF	R. Cooke	B. A. Parkes, Ltd.
New Prince	GBRN	M. Wright	Heward Trawlers, Ltd.
Red Charger	GCNF	R. Wright	Iago Steam Trawler Co., Ltd.
Red Crusader	GTBP	K. Hames	Iago Steam Trawler Co., Ltd.
Red Hackle	MLCX	E. Littler	Iago Steam Trawler Co., Ltd.
Red Knight	MBQT	M. Wright	Iago Steam Trawler Co., Ltd.
Red Lancer	MKTP	J. Tomlinson	Iago Steam Trawler Co., Ltd.
Red Rose	MFMX	J. McKernon	Iago Steam Trawler Co., Ltd.
Reptonian	GWQF	H. Reader	Dinas Steam Trawling Co., Ltd.
Robert Hewett	MDYS	G. Elliott	Hewett Fishing Co., Ltd.
St. Amant	GFVD	J. Dobson	J. Marr & Son, Ltd.
St. Britwin	MFXJ	J. H. Miller	T. Hamling & Co., Ltd.
St. Elstan	GDDL	G. Argumont	T. Hamling & Co., Ltd.
St. Nectan	GZJY	L. Abbey	T. Hamling & Co., Ltd.
Westella	GTWV	H. Daniel	Dinas Steam Trawling Co., Ltd.
Woolton	MBFN	P. Bedford	Wyre Steam Trawling Co., Ltd.
Wyre General	GDXW	R. Hutcheon	Wyre Steam Trawling Co., Ltd.

LIGHT VESSELS

The following Light vessels voluntarily observe, record and/or report from coastal waters of Great Britain.

Name of Vessel	Masters
Bar	E. E. Abbott
Dowsing	J. R. Audley, S. R. Smith
East Goodwin	A. Giblin, F. M. England, W. S. Parish
Galloper	S. J. Vincent
Humber	F. I. Butcher, L. A. Brett
Newarp	T. J. Sales, W. J. Rogers
Royal Sovereign	W. J. Sheaf
St. Gowan	H. G. T. Morgan, W. Thomas
Seven Stones	H. C. King, —. Appleby
Shambles	J. H. Cooper, W. C. Mouland
Shipwash	G. W. Broom, C. G. Isaac
Skulmartin	D. Hawkins
Smith's Knoll	W. J. Hall, J. W. R. Reeve, B. Hadden

TRAINING ESTABLISHMENTS

The following is a list of Training Establishments which submit logbooks, kept by cadets under training, to the Marine Branch.

Establishment	Captain/Superintendent	Last Return Received
Conway, H.M.S.	E. Hewitt, R.D., Capt., R.N.R.	12.8.52
Pangbourne Nautical College	H. C. Skinner, O.B.E., Cdr., R.N.	31.7.52
Warsash, School of Navigation	G. W. Wakeford, Capt.	31.7.52
Worcester, H.M.S.	G. C. Steele, V.C., Cdr., R.N. (Retd.)	31.7.52

FLEET LIST (Australia)

VOLUNTARY OBSERVING SHIPS

The following is a list of observing ships voluntarily co-operating with the Meteorological Service of Australia

Name of Vessel	Captain	Observing Officers	Senior Radio Officer	Owners/Agents
Selected Ships:				
Canara	W. Bird, O.B.E.	T. Woodward, J. D. Campbell, C. C. Springall	P. A. Stuart	British India Steam Nav. Co.
Chupra	J. D. Woods	C. Allerton, H. S. Strawbridge, W. L. Hillcoat	R. C. Whiting	British India Steam Nav. Co.
Idomeneus	J. L. Johnston	W. A. Clark, G. D. F. Cruickshank, P. S. Lombard, G. Moncks	A. N. Williams	A. Holt & Co.
Kolinda	J. S. Airey	J. Paulsen, J. Palfreyman, R. Seaward	H. White	Western Australian State Steamships
Koomilya	F. W. Roberts	C. Stewart, R. Sicklin, G. Steinbeck	F. Mackie	McIlwraith, McEacharn, Ltd.
Kooringa	F. McLean	A. D. Hanson, V. Bovell, J. A. Grey		McIlwraith, McEacharn, Ltd.
Lowana	L. Fry	C. A. Blow, T. H. Millidge, J. K. Saint	R. M. Rees	Melbourne Steamship Co., Ltd.
Nellore	T. Mills	A. Johnston, G. Champion, G. Cleveland, K. Skinner	J. Bell	Eastern & Australian S.S. Co., Ltd.
Orestes	F. J. Cockburn	A. Surtees, G. Kitching, R. Denning, P. Beckett	J. Dennison	A. Holt & Co.
River Burnett	L. G. Ramsay	R. Campbell, H. W. Robinson, T. Beckinsale	F. E. Audsley	Australian Shipping Board
River Clarence	W. W. Fish	A. T. Lake, I. K. S. Adam, S. F. Dockwell	G. Harper	Australian Shipping Board
River Mitta	A. Knight	G. Davies, K. Clarence, W. Wiggins	M. Pearson	Australian Shipping Board
Triadic	A. Rhoades	J. P. Milton, W. L. Harboard, W. B. Jeavons	M. Hayter	British Phosphate Commission
Trienza	P. Richardson	D. Neilson, D. Robb, K. Oliver	J. Ward	British Phosphate Commission
Triona	C. L. Evans	P. W. Thompson, S. E. B. Harris, B. J. Robertson	R. G. Neale	British Phosphate Commission
Wanganella	—	—	—	Huddart, Parker, Ltd.
Supplementary Ships:				
Diomed	A. M. Caird	H. A. Jeffrey, K. W. Dunlop, E. Webb	C. Palmer	A. Holt & Co.
Derrigo				Australian Shipping Board
Kybra				Western Australian State Steamships

FLEET LIST (Canada)

VOLUNTARY OBSERVING SHIPS

The following is a list of observing ships voluntarily co-operating with the Meteorological Service of Canada.

NAME OF VESSEL	OWNERS
Selected Ships	
Aorangi	Canadian Australasian Line.
Canadian Challenger	" Canadian Challenger ", Ltd. (Canadian National Steamships).
Canadian Constructor	" Canadian Constructor ", Ltd. (Canadian National Steamships)
Canadian Cruiser	" Canadian Cruiser ", Ltd. (Canadian National Steamships).
Esso Knoxville	Imperial Oil, Ltd.
Fort Amherst	Furness, Withy & Co.
Fort Townshend	Furness, Withy & Co.
Imperial Alberta	Imperial Oil, Ltd.
Imperial Charlottetown	Imperial Oil, Ltd.
Imperial Fredericton	Imperial Oil, Ltd.
Imperial Quebec	Imperial Oil, Ltd.
Imperial Toronto	Imperial Oil, Ltd.
Imperial Winnipeg	Imperial Oil, Ltd.
John S. Pillsbury	Upper Lakes and St. Lawrence Transportation Co. Ltd
Lady Nelson	" Lady Nelson ", Ltd. (Canadian National Steamships).
Lady Rodney	" Lady Rodney ", Ltd. (Canadian National Steamships).
Lake Manitou	Western Canada Steamship Co., Ltd.
Lake Minnewanka	Western Canada Steamship Co., Ltd.
Lake Pennask	Western Canada Steamship Co., Ltd.
Lake Sicamous	Western Canada Steamship Co., Ltd.
Lake Winnipeg	Western Canada Steamship Co., Ltd.
Lakemba	B. C. Ship Chartering Co., Ltd.
Ottawa Valley	Montreal, Australia, New Zealand Line, Ltd.
Pinnacles	Deep-Sea Tankers, Ltd.
Rupertsland	Hudson's Bay Co., Ltd.
Tantara	Johnson Walton Steamships, Ltd.
Waihemo	Canadian Union Line, Ltd.
Waikawa	Canadian Union Line, Ltd.
Wairuna	Canadian Union Line, Ltd.
Waitomo	Canadian Union Line, Ltd.
Lightships:	
Lurcher Lightship	Minister of Transport.
Sambro Lightship	Minister of Transport.

FLEET LIST (India)

The following is a list of observing ships voluntarily co-operating with the India Meteorological Department.

NAME OF VESSEL	OWNERS/AGENTS
Selected Ships:	
Alavi	Mogul Line, Ltd.
Bahadur	Asiatic Steam Navigation Co., Ltd.
Bombay	Scindia Steam Navigation Co., Ltd.
Dara	British India Steam Navigation Co., Ltd.
Daressa	British India Steam Navigation Co., Ltd.
Dumra	British India Steam Navigation Co., Ltd.
Dwarka	British India Steam Navigation Co., Ltd.
Havildar	Asiatic Steam Navigation Co., Ltd.
Islami	Mogul Line, Ltd.
Jalazad	Scindia Steam Navigation Co., Ltd.
Jaladuta	Scindia Steam Navigation Co., Ltd.
Jalaganga	Scindia Steam Navigation Co., Ltd.
Jalajawahar	Scindia Steam Navigation Co., Ltd.
Jalakrishna	Scindia Steam Navigation Co., Ltd.
Jalamani	Scindia Steam Navigation Co., Ltd.
Jalamanjari	Scindia Steam Navigation Co., Ltd.
Jalaprakash	Scindia Steam Navigation Co., Ltd.
Jalarashmi	Scindia Steam Navigation Co., Ltd.
Jalaveera	Scindia Steam Navigation Co., Ltd.
Jalayamuna	Scindia Steam Navigation Co., Ltd.
Jehangir	Mogul Line, Ltd.

Kampala	British India Steam Navigation Co., Ltd.
Karanja	British India Steam Navigation Co., Ltd.
Khosrou	Mogul Line, Ltd.
Mahadevi	Asiatic Steam Navigation Co., Ltd.
Maharaja	Asiatic Steam Navigation Co., Ltd.
Mozaffari	Mogul Line, Ltd.
Nadir	Asiatic Steam Navigation Co., Ltd.
Nurani	Asiatic Steam Navigation Co., Ltd.
Rajula	British India Steam Navigation Co., Ltd.
Santhia	British India Steam Navigation Co., Ltd.
Shahjehan	Asiatic Steam Navigation Co., Ltd.
Singu	Burma Oil Co., Ltd.
Subadar	Asiatic Steam Navigation Co., Ltd.
Umaria	British India Steam Navigation Co., Ltd.
Warla	British India Steam Navigation Co., Ltd.
Supplementary Ships:	
Akbar	Mogul Line, Ltd.
Badarpur	Burma Oil Co., Ltd.
Bharatjal	Bharat Line, Ltd.
Bharatmata	Bharat Line, Ltd.
Bharatraja	Bharat Line, Ltd.
Bharatrani	Bharat Line, Ltd.
Itaura	British India Steam Navigation Co., Ltd.
Jaladurga	Scindia Steam Navigation Co., Ltd.
Jalagopal	Scindia Steam Navigation Co., Ltd.
Jalakendra	Scindia Steam Navigation Co., Ltd.
Jalaketu	Scindia Steam Navigation Co., Ltd.
Jalamayur	Scindia Steam Navigation Co., Ltd.
Jalarajendra	Scindia Steam Navigation Co., Ltd.
Jalaratna	Scindia Steam Navigation Co., Ltd.
Malika	Asiatic Steam Navigation Co., Ltd.
Risaldar	Asiatic Steam Navigation Co., Ltd.
Rizwani	Mogul Line, Ltd.

FLEET LIST (New Zealand)

VOLUNTARY OBSERVING SHIPS

The following is a list of observing ships voluntarily co-operating with the Meteorological Service of New Zealand.

Name of Vessel	Owners
Selected Ships:	
Kauri	Union Steam Ship Company of New Zealand, Ltd.
Karitane	Union Steam Ship Company of New Zealand, Ltd.
Kaitoke	Union Steam Ship Company of New Zealand, Ltd.
Kawaroa	Union Steam Ship Company of New Zealand, Ltd.
Komata	Union Steam Ship Company of New Zealand, Ltd.
Kopua	Union Steam Ship Company of New Zealand, Ltd.
Koromiko	Union Steam Ship Company of New Zealand, Ltd.
Kowhai	Union Steam Ship Company of New Zealand, Ltd.
Kurow	Union Steam Ship Company of New Zealand, Ltd.
Kurutai	Union Steam Ship Company of New Zealand, Ltd.
Matua	Union Steam Ship Company of New Zealand, Ltd.
Maui Pomare	New Zealand Government.
Monowai	Union Steam Ship Company of New Zealand, Ltd.
Tofua	Union Steam Ship Company of New Zealand, Ltd.
Waimate	Union Steam Ship Company of New Zealand, Ltd.
Waipori	Union Steam Ship Company of New Zealand, Ltd.
Wairata	Union Steam Ship Company of New Zealand, Ltd.
Wairimu	Union Steam Ship Company of New Zealand, Ltd.
Waitaki	Union Steam Ship Company of New Zealand, Ltd.
Waitemata	Union Steam Ship Company of New Zealand, Ltd.
Supplementary Ships:	
Kaiapoi	Union Steam Ship Company of New Zealand, Ltd.
Kaimanawa	Union Steam Ship Company of New Zealand, Ltd.
Kaitangata	Union Steam Ship Company of New Zealand, Ltd.
Kaitawa	Union Steam Ship Company of New Zealand, Ltd.
Kawatiri	Union Steam Ship Company of New Zealand, Ltd.
Kiwitea	Union Steam Ship Company of New Zealand, Ltd.
Konui	Union Steam Ship Company of New Zealand, Ltd.
Korowai	Union Steam Ship Company of New Zealand, Ltd.
Piri	Imperial Chemical Industries, Ltd.
Port Waikato	Holm & Company, Ltd.
Viti	Tasman Steam Ship Company, Ltd.
Waiana	Union Steam Ship Company of New Zealand, Ltd.

FLEET LIST (Hong Kong)

VOLUNTARY OBSERVING SHIPS

The following is a list of observing ships voluntarily co-operating with the Royal Observatory, Hong Kong.

Name of Ship	Captain	Observing Officers	Senior Radio Officer	Shipping Company or Operators
Anking	J. Taylor	W. Pollock, J. F. O'Connor, J. R. Suffren	D. F. MacDonald	China Navigation Co., Ltd.
Anshun	D. McG. Holmes	S. Fergusson, H. A. Ledeboer, F. T. Guinn	E. G. Inwood	China Navigation Co., Ltd.
Castle Peak	A. L. Waites	T. Hunter, Yuan King Lau, J. K. Chan	Kwok Shek Hee	Mollers' (Hong Kong), Ltd.
Changsha	E. Bruce	V. R. Woolfe, A. W. K. Prosser, W. T. Masters	T. W. Pomeroy	China Navigation Co., Ltd.
Changte	A. M. Tullock	G. D. Davey, R. A. Smith, B. G. White	R. McNamara	Australian Oriental Line
Choy Sang	W. E. Reeve	P. J. Sullivan, J. Taylor, M. J. Pope	R. M. Legg	Indo-China Steam Navigation Co., Ltd.
Chun Sang	D. G. R. Kinnear	J. G. Perrin, P. G. Harkness, K. C. Yeung	E. West	Indo-China Steam Navigation Co., Ltd.
Eastern Glory	H. J. Cairns	T. J. Ashcroft, R. H. McAlister, R. T. Nicholls	C. D. Evans	Indo-China Steam Navigation Co., Ltd.
Eastern Queen	D. G. Burleigh	W. J. Bartlett, J. Krasucki, D. Thompson	R. O. Smith	Indo-China Steam Navigation Co., Ltd.
Eastern Saga	S. Schofield	G. Parish, A. N. Johnston, J. M. Taylor, J. B. Bowman	R. J. Bartlett	Indo-China Steam Navigation Co., Ltd.
Eastern Star	J. H. Fraser	C. Thomson, T. H. Nichols, A. D. Caporn, P. K. Phoenix	A. Smith	Indo-China Steam Navigation Co., Ltd.
Eastern Trader	J. L. Baines	A. C. Tai, Y. S. Loh, S. H. Loo	Simon Chang	Great Southern Steamship Co., Ltd.
Elsbeth	E. C. Thomson	D. O. Conway, O. Y. Wellington	K. Y. Pun	Shun Cheong S. N. Co.
E Sang	E. J. Thomson	F. H. Main, M. J. K. Crichton, T. Y. Yuen	W. I. Briggs	Indo-China Steam Navigation Co., Ltd.
Fengning	C. A. N. Baker	A. J. Keddie, A. L. Thomas, S. K. Chen	Leung Cheuk	China Navigation Co., Ltd.
Fengtien	F. Gibbs	J. C. Anderson, L. W. Rothwell, C. F. Chan	Leung Shu Fun	China Navigation Co., Ltd.
Foochow	J. W. Evans	S. H. Liu, P. Baxter, A. P. Sokoloff	Leung Tjeuk Shing	China Navigation Co., Ltd.
Fort Charlotte	F. G. Edwards	J. R. Dixon, R. H. Gollop, J. Logan	G. H. Parker	Royal Fleet Auxiliary
Fukien	A. H. Finnie	J. Hunter, W. N. Murray, J. C. Mark	Leung Man Hin	China Navigation Co., Ltd.
Funing	N. McMillan	G. A. Abbs, D. L. Wilson, F. A. S. Millar	D. E. Tavares	China Navigation Co., Ltd.
Hai Lee	J. Hansen	T. K. Pedersen, G. Glasoy, K. Ness	Wuie Iu Chan	China Siam Line
Hai Meng	T. Stange Olsen	B. Thodesen, A. Holmvik, P. Brandal	Chan Kam Tsun	China Siam Line
Hang Sang	J. F. G. Fotheringham	W. Graham, W. E. Maclackland, Keng Jen Ko	Wong On Chung	Indo-China Steam Navigation Co., Ltd.
Hanyang	F. Kelly	A. Harper, W. E. O'Connor, J. H. M. Twibill	R. A. Wilson	China Navigation Co., Ltd.
Heinrich Jessen	R. A. D. Nielsen	C. S. Jensen, W. Kronnebitter, Lim Poh Shui	T. G. Oliver	Jebsen & Co., Ltd.
Hermelin	O. Osterberg	L. Eide, A. Skjørvestad, S. Sørvik	Lai Kwong Yin	China Siam Line
Hermod	O. Apold	J. Eide, M. Sandvik, R. Grønvold	So Yuet Hand	China Siam Line
Hew Sang	R. G. G. Stanton	L. Ovsiannikoff, J. Adair, W. M. Coates	Chan Kwok Chuen	Indo-China Steam Navigation Co., Ltd.
Hin Sang	G. W. F. Edwards	A. A. Watson, M. de Verteuil, J. H. Jeffryes	Ma Ping Leung	Indo-China Steam Navigation Co., Ltd.
Hippopotamus	G. W. Milbourn	W. S. E. Cream, Pak Kam Chuen	P. H. Chan	Wallem & Co., Ltd.
Hiram	S. Jensen	A. Andersen, H. Fredenborg, O. Sivertsen		China Siam Line
Hoi Houw	A. Fjeldheim	O. Oftedal, O. Utseth, A. Johannesen	H. Fastingsen	Karsten Larssen & Co. (Hong Kong), Ltd.
Hoi Wong	Kr. Munkejore	B. Maeland, A. Vespestad, M. Madsen	A. J. Takvam	Karsten Larssen & Co. (Hong Kong), Ltd.
Hunan	H. Pilling	J. R. Keddie, D. S. Southey, I. Robinson	Liu Yuk Kong	China Navigation Co., Ltd.
Hupeh	R. E. Selwyn Jones	V. Walker, G. Baxter, R. M. Snowie	Tsang Kau	China Navigation Co., Ltd.
Lok Sang	T. C. W. Marr	R. J. Cooper, M. T. G. Fish, C. M. Gibbs	J. E. Chew	Indo-China Steam Navigation Co., Ltd.
Mui Heng				Chin Seng Hong Shipping Co., Ltd.
Mui Hock				Chin Seng Hong Shipping Co., Ltd.
Nordstjernan	K. A. Nissen	P. A. Perswalld, F. A. Hartmann, S. A. Arneskans	K. I. Danborn	Everett Steamship Corporation
Pakhoi	G. T. M. Ramsay	G. S. Ireland, R. E. Easley, V. A. Boutskoi	Leung Kan	China Navigation Co., Ltd.
Poyang	J. W. E. Warrior	S. J. Yeandle, A. Bartley, I. A. Scott	Li San Kau	China Navigation Co., Ltd.

Produce	L. Hetland	J. Aksens, J. Samuelsen, L. Fagerland	P. Worre	Karsten Larssen & Co. (Hong Kong), Ltd.
Sangola	R. F. Weatherseed	W. S. Mair, J. M. Woolcock, H. L. Thein	S. G. Wessel	British India S. N. Co., Ltd.
Shansi	W. E. Awcock	C. N. Stewart, B. J. S. Squire, S. T. Sung	Wai Pun Un	China Navigation Co., Ltd.
Shengking	E. H. Histed	R. Perry, J. R. Brett, S. N. Lai	R. R. Stevenson	China Navigation Co., Ltd.
Shillong	G. A. Wild	B. D. H. Thomson, E. Snowden, J. F. Bannister	M. McKinnon	British India S. N. Co., Ltd.
Sinkiang	A. Taylor	A. V. Harrison, D. S. M. Tosh, T. R. Young	Chin Fook On	China Navigation Co., Ltd.
Sirdhana	A. A. Lewis	R. I. Higgin, K. Malswski, T. K. Kelso, P. A. Berridge	H. M. O. Garman	British India S. N. Co., Ltd.
Soochow	G. P. Cope	D. W. R. Cash, A. O. Atkinson, T. Harrison	U. In San	China Navigation Co., Ltd.
Star Alcyone	G. V. A. Almstrom	K. G. Lindh, S. D. Bayliss, J. O. Blomberg	E. O. Lindahl	Everett Steamship Corporation
Szechuen	D. Needham	W. Davidson, J. Paton, R. A. Button	Choi Pong Cheung	China Navigation Co., Ltd.
Taiyuan	Y. N. Campbell	A. Watson, D. A. Hutchinson, L. L. Watson	R. M. Inwood	China Navigation Co., Ltd.
Tak Sang	W. T. Rochester	E. M. Norman, C. Przybylinski, K. Y. Feng	P. J. Behan	Indo-China Steam Navigation Co., Ltd.
Thai	E. V. Lieberath	G. H. Drake, R. A. Ericksson, K. A. Albertsson	P. G. Nilsson	Everett Steamship Corporation
Wing Sang	H. G. Goddard	J. H. Thomas, J. H. Gould	A. G. Lum	Indo-China Steam Navigation Co., Ltd.
Wo Sang	G. Owens	R. W. E. Little, W. G. White, R. D. A. Owen	K. J. Bourke	Indo-China Steam Navigation Co., Ltd.
Yochow	J. F. Follett	P. H. Ward, S. W. Owen, H. Nightingale	Cheung Shiung	China Navigation Co., Ltd.
Yunnan	D. C. Sim	J. Storey, J. G. de C. Veale, F. Coulson	Yu Pak Pui	China Navigation Co., Ltd.

FLEET LIST (South Africa)

The following is a revised list of observing ships voluntarily co-operating with the Weather Bureau of South Africa.

Name of Ship	Captain	Observing Officers	Radio Officer	Owners/Managers
Abraham Larsen	E. Christoffersen			Union Whaling Co., Durban.
Africana II	R. L. V. Shannon, O.B.E.	A. Thomas, D.S.C., L. Moon		Department of Fisheries, Cape Town
Agulhas	D. C. Wallwork	P. Sharp, P. Nankin, P. Birch	H. A. Pypers	Van Riebeeck Lines, Cape Town.
Aloe	S. S. Edwards	M. Williams, G. P. Brandt, P. Carrington	J. Klosser	Sarships, Durban
Basuto	E. Hale	A. Fawthrop		Thesen's S.S. Co., Cape Town
F. T. Bates	R. W. Watson	A. A. Ruckbie	C. S. Ehlers	S.A. Railways and Harbours, Cape Town
Benin	—. Webber	J. Smith, J. Holt, —. Makkink		Elder Dempster
Calabar	R. W. Philip	R. Rainir, R. Parker, D. J. C. Wright	B. D. Jackson	Elder Dempster
Constantia	F. D. Wilkinson	G. D. Duguid, N. T. Casely, R. Daniels	R. Briggs	S.A. Marine Corp., Cape Town
Dalia	E. N. Stewart	S. J. Hurst, S. J. Benjamin, S. H. Damp	J. Fluitman	Sarships, Durban
Gilia	J. Lundberg, M.B.E.			Irving and Johnson, Cape Town
Kaapland	P. F. M. Buchholtz	B. I. Algar, G. Casey, R. Caracandas	P. Goggin	South African Lines, Cape Town
Mashona	P. Bolam			Thesen's S.S. Co., Cape Town
Matabele Coast	O. C. Olsen	E. Steedman		Thesen's S.S. Co., Cape Town
Morgenster	D. W. Thorpe	A. F. Horden, G. W. Clancy, D. P. Powell	G. Adey	S.A. Marine Corp., Cape Town
Pequena	A. Soderland	M. T. Scott		Tristan Development Co., Cape Town
Roodewal			G. A. Chapman	Van Riebeeck Lines, Cape Town
Tristania	G. E. Hime	W. Allen, J. Pols	S. P. Garnett	Tristan Development Co., Cape Town
Vergelegen	F. Honeyman	R. Thompson, A. F. A. Pearson, D. A. Harris	A. Williams	S.A. Marine Corp., Cape Town
South African Nautical College *General Botha*	Captain G. V. Legassick, D.S.C., R.D., Capt. R.N.R.	The Senior Cadets		
Naval Gymnasium, Saldanah Bay	Lt.-Cdr. J. J. C. Rice, V.R.D.	The Senior Cadets		

Notices to Marine Observers

Postal Arrangements

The quarterly numbers of *The Marine Observer* are published on the last Wednesdays of December, March, June and September.

The Marine Observer is addressed to the Captain, S.S./M.V. ....., c/o the owners, and captains are requested to make their own arrangements for forwarding.

Shipowners, Marine Superintendents and all concerned in the despatch of mails to ships are asked to kindly facilitate the despatch and delivery of mail received at their offices from the Meteorological Office and "Air Publications and Forms Stores" to their ships abroad. Addressed to the captains of ships, this contains information required for the conduct of meteorological work at sea, and is most effective if received by the captains at the earliest possible date.

Ice Observation

Drifting ice, derelicts and other floating dangers to navigation are reported by all means of communication at the disposal of the master.

See Chapter 12, pages 96–98 of the *Marine Observer's Handbook*, Seventh Edition.

It is also desirable that more detailed information than can be given in a TTT wireless message should be available to the Meteorological Office for the purpose of research, and for Admiralty Charts and Sailing Directions.

Marine observers will greatly assist by noting the conditions of ice, either drifting or fast, in the pages provided at the end of the logbook (Form 911), or on Form 912, which may be supplied to the captain of any British ship on application to a Port Meteorological Officer or Merchant Navy Agent.

Observing ships using the Trans-North Atlantic tracks are requested to record not only when ice is encountered, but also when they have passed through the ice region during the ice season without encountering ice. In this case a "nil" report should be returned, since it is desirable as far as possible to determine when tracks have been clear of ice.

Southern Ice Reports

During the year 1952

July, August and September, no ice reports received. Reports of ice for these months for 1950 and 1951 will be found in the *Marine Observer*, Vol. XXII, No. 157, page 161.

(contd. from p. 164)

between the two and tended to bear out Mr. Longuet-Higgins's theory. Mr. Darbyshire showed a number of weather maps to illustrate the truth of this statement.

From the discussion afterwards it appeared that although there is little doubt that microseisms have a distinct relationship to meteorological disturbances, it is very difficult to utilise this knowledge for locating or forecasting storms because it is difficult to get the orientation and distance of the microseism. Nevertheless, it is understood the United States have for some time been experimenting with microseisms in an attempt to use them to help locate typhoons in the China Sea.

C. E. N. F.

ABRIDGED LIST OF PUBLICATIONS OF THE METEOROLOGICAL OFFICE

Publications may be ordered from the Sale Offices of Her Majesty's Stationery Office at the addresses shown on the title page or through any bookseller

Cloud Forms. Definitions and descriptions, with photographs of clouds (M.O. 233, 6th edition, 1949, reprinted 1952.) 2*s.* (2*s.* 1½*d.*)

Weather Map. An introduction to modern meteorology. (M.O. 225 i, 3rd edition, 1939, reprinted 1952.) 3*s* 6*d* (3*s.* 8*d.*)

Meteorological Glossary (continuation of the "Weather Map" *q v*). (M.O. 225 ii, 3rd edition, 1939, reprinted 1953.) 12*s.* 6*d.* (13*s.*)

Handbook of Weather Messages, Codes and Specifications. (M O 510.)

Part I. Transmission schedules and station index numbers (1949.) 2*s.* 6*d* (2*s.* 8*d*)

Part II. Codes and Specifications. (1948, reprinted 1950) 2*s.* 6*d* (2*s.* 8*d.*)

Part III. Coding, decoding and plotting. (1948, reprinted 1950.) 2*s.* (2*s.* 2*d.*)

(*Amendments issued as necessary and priced separately.*)

Instructions for the Preparation of Weather Maps with tables of the specifications and symbols. (M O. 515, 1949, reprinted 1951.) 1*s.* 6*d.* (1*s.* 7½*d*)

International Meteorological Code adopted by the International Meteorological Organisation, Washington, 1947. **Decode for the use of shipping,** incorporating the code for weather reports from and to ships and the analysis code for the use of shipping. (M.O. 509, 2nd edition, 1950, reprinted 1952) 1*s.* 6*d.* (1*s.* 7½*d.*)

Marine Observer's Handbook. (M.O. 522, 7th edition, 1950, reprinted 1952) 10*s.* 6*d* (10*s.* 11*d.*)

Meteorological Handbook for Pilots and Navigators. (M.O. 448, 2nd edition, 1942, reprinted 1952.) 3*s.* 6*d.* (3*s* 8*d.*)

Meteorology of Airfields. By C. S Durst, B.A. (M.O. 507, 1949, reprinted 1950.) 2*s.* (2*s.* 2*d.*)

Meteorology for Aviators. By R C. Sutcliffe, Ph D. (M.O. 432, 1940, reprinted 1951.) 8*s.* 6*d.* (9*s.*)

A Short Course in Elementary Meteorology. By W. H. Pick, B.Sc., F C.P., F.Inst.P. (M.O. 247, 5th edition, 1938, reprinted 1950.) 2*s.* 6*d.* (2*s.* 9*d.*)

Prices in brackets include postage

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1952 Edition

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11738 Wt. 7. 18. 6/53. K13. S.P. & S. G.9.8.8. S.O. Code No. 40-38-7-53